Toward a Theory of Religious Consciousness

in its Reliance upon Western Man's Understanding of Nature, Ultimacy and Teleology

door

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geboren te Chicago, Illinois, U.S.A.

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Introduction

Man in view of historic cultures, if not individually, ceaselessly redefines himself. Not every attempt is renewable by posterity. Yet he searches for more than daily significance. He seeks meaning but not only as a transitory apprehension to satisfy immediate needs. He notes that the dynamism of life presses upon him, at times urgently, to explain himself from a broader horizon, an ultimate point of view, not merely a daily one. In these moments he releases the fundamental tension that he feels is a question unto himself. He means to form his religious consciousness.

One can trace among the evidence of Western man's intellectual and cultural history, a constant search for ultimate meaning. From the early Hellenistic communities to our own nuclear and technological society, there recurs in human consciousness an unrestricted desire to render a fundamental explanation for existence. History shows that man has diversified this searching desire. Experimenting with reality, he reaches out in manifold directions without exhausting all the possibilities. Not every concrete direction succeeds or reveals equal value for the humanization

of this task.

In Western cultures, assuming culture to mean the symbol for the totality of human life, one can reflect on man's efforts at participation in life and communication of meaning and discover that finality has been the drawing force. The emergence of thought and action reveal, in other words, purpose as an intrinsic principle of their exercise. His rational attempts at meaningful living have not been the result of random choices. In fact, man tries to avoid or incorporate the resurgence of chance in order to minimize interference and complete his prescribed directions, to reach his goals in life.

In completing his unfinished nature, the context of his rational growth presupposes a teleological orientation towards reality. By speaking of "teleology," we mean to say that man is a purposive being; that he understands his nature in the selection and implementation of means and ends or goals; and that nature itself also shares analogously with man a telic dynamism. The teleological nature of man is unique. His growing self-consciousness of what is required for him to exist meaningfully in a not altogether harmless world, returns to him in a teleological form. Thus, the transformation of his biological and intellectual existence exposes varying but successive experiences with life whose meaning man appropriates in giving direction to his growing processes.

In this lengthy, usually uneven and difficult process of self-realization, and relying upon a sufficiency of order and stability characterizing nature's activities, man gradually learns that the dynamic principles of reality are also teleological in their history. And since creative survival and

ultimacy have an irreplaceable value for man, the teleological categories, such as motivational behavior, morality, providential meaning and cultic actions (cf. page 180 ff.), required for their intelligible achievement reveal themselves as necessary conditions of his existence.

At the same time, within the general structuring of cultural history, there tends to arise epochal insights that specify man's participatory meaning within a determined period. These illuminating instances depict how he has articulated his acceptance of the perennial task of finding and disclosing the ultimate rhyme and reason of existence. A spectrum of interpretations unearths. As a cross-cultural phenomenon displaying a divergent universality, each era contributes its summary view to the meaning of man and reality. These diverse traditions of meaning have had an uneven import in the shaping and preservation of the culture which accepts their value. Generally speaking, it has been the role of formal or institutional religions to assume the priority of meaning in cultural awareness. Since the post-Renaissance era, however, formal religion has met with a cultural ascending competitor for ultimacy. The progression of scientific thought and its technocratic consequences have produced an understanding of man and reality and ultimacy that remains unique in cultural history. We will come back to this situation in a moment.

In any event, the settling of man's understanding of the totality of life, wherein he affirms a set of symbolic forms and acts which relate him to the ultimate conditions of his existence, have been revised again and again through Western cultural history. Occasioned by the dynamism of life, problems of maintenance have arisen.

How to preserve the religious symbolism intact in the face of human experiences whose meaning becomes increasingly difficult to justify in terms of the inherited paradigm. History shows that unless the symbolism can embrace the meaning of these experiences, man yields to the pressure of searching for new perspectives. Forced by the dynamism of life, revisions in the meaning of ultimacy have often placed the traditional or cultural paradigm in jeopardy, all the while, nevertheless, illustrating the demand for purposeful categories of thought and action to unify the meaning of ultimacy with the changing conditions of life.

These introductory remarks bring us to the purpose of our dissertation, which is twofold: first, our task will be to show that Western man's epochal formulation of religious consciousness—the quest for ultimate meaning—has involved definite but variable correlations between the concepts of nature, ultimacy and God; second, that the correlations among these concepts in their bearing upon the formation of ultimate meaning or religious consciousness are suitably understood within a framework of teleology. In other words, the experiences of those events and judgments in cultural history that man relies upon for explaining the fundamental significance of life are only as meaningful to him as the teleological categories which depict and interpret them.

Our method of procedure will be to examine the historical successions of man's efforts at formulating ultimacy in terms of a constitutive analysis. Consequently, our method will involve recognizing those wide eras of cultural significance that permit a generalization of ultimate

meaning, that is, to arrange our investigation of man's pursuit of religious consciousness within a certain chronological order beginning with the Hellenistic times and concluding with our own. As shaping history, we readily agree that ultimacy is not an isolated subject but an essential ingredient in cultural dynamics.

In keeping this sense of totality, our specific approach to this task will be guided by those instances of Western culture where we can focus upon the correlation between the concepts of nature, ultimacy and God. By discussing the symbolic impact of these concepts upon man's self-understanding, we come to discover their significance for the formation of religious consciousness and vice versa.

Our analysis shall try to show that man attempts to know more than just the data of reality and classify the results; he desires to discover beyond these empirical facts the full nature of his identity which depends a great deal upon his efforts to interrelate his knowledge of the world with his efforts at self-realization. Thus man faces nature not only to know it but to survive in it. The dynamis of his culture becomes the essential component in the structuring of the totality of an era. Consequently the symbols he composes to reflect his understanding of nature include his teleological determination to exist in and through them. The symbols he chooses in explicating reality not only mediate his relation to nature but also to the wholeness of reality as he understands it.

In attempting to sustain the totality of cultural dynamics, including the possibility for transcendence, our method will proceed within a framework that unites the

empirical as well as the speculative aspects of reality by coordinating their functional significance with their humanistic meaning.[1] By analyzing the historical symbols man has chosen to reflect his self-understanding and nature, we are given clues to the central tendency within him, namely, the realization of optimal survival and ultimate meaning. By examining the practical consequences of this conviction, we find a criterion for evaluating the contents of the cultural complex that supports or resists it. Since man is present to himself in thought, speech and action, he has the opportunity for discovering the logic of his insight as he attempts to manifest it vis-a-vis nature. He either succeeds or fails in grounding his anticipation. Accordingly, we shall try to decipher the inherent logic of those positions of ultimacy within their career and in contrast with their competitors, accounting as we can for the conditions that allowed for cultural transitions. In pursuing our task we shall be further guided by the insight that "To find the truth of his own and to interpret that of those with whom he communicates, man has to become aware of the hermeneutical situation as a fundamental principle of practical and theoretical existence and vice versa. There can be understanding to the extent only that we subject its development to the demands of reality and truth, by which logic becomes logical and methods conclusive. To recall these conditions when processing the data of culture history is the purpose of constitutive analysis."[2]

The Role of Human Consciousness

In designating these broad eras of cultural history,

we come to note the manifestation of certain modalities of consciousness. In man's attempt to explain life, he has discovered and expressed the truth of being through special levels of articulation that include myth, philosophy, science and theology. These patterns of intelligibility have emerged from human consciousness within cultural circumstance and each has taken the lead at some time in history in deciphering and directing the meaning of life.

Yet these modalities are not anachronisms belonging only to a transitory period of yesteryear. They have retained their vitality and pertinence in every era since their inception, but under different guises. They seem to be permanent but developing modes of apprehension and expression that human consciousness recreates within cultural history to reflect and symbolize the directional dynamism of being or the finality of life. While it is too much beyond our purpose to explore in great detail the full ramifications of their significance, what can be emphasized within each modality's portrayal of reality are recurring correlations between nature and ultimacy on the one hand, and, mediated by religious consciousness and the God concept, the structure of teleology, on the other.

Throughout our study, then, we shall try to disclose the evidence that even when cultural history reveals that any one of these modalities of consciousness loses its primacy of value, undergoes transition or substitution (for example, the changeover from the medieval to the modern worldview), still man searches anew in order to satisfy that conscious imperative he feels to comprehend the totality of what he can experience. Eventually his rehabilitating efforts to understand life amidst cultural

changes returns to the question of the final significance of reality.

In describing religious consciousness with respect to the issue of teleological meaning, we do not necessarily imply religion as a denominational phenomenon. Rather, to speak of religion here is to postulate its purposeful reference to the teleological dynamism of man and reality. In this way religious consciousness and the consciousness of ultimacy merge with one another. As a result, religion can signify a wider application than a formal set of beliefs. At the same time, it is not to forget that institutional beliefs and denominations as well as private preferences, have contributed their own historical specifications to the search for ultimate meaning.

In Part One we examine the concepts of nature and ultimacy in their import for man's self-understanding, showing the emergence of the modalities of consciousness as patterns of intelligibility to aid his investigation and expression of reality. In so doing, we discover that the appreciation of teleological categories of being have had an uneven history of affirmation and denial. In our times alone, the persistent quest to render an ultimately coherent account to life has run aground. A dominant version of scientific rationality, a mode of consciousness, and the concommitant scepticism regarding religious values has, for many people, nullified the teleological significance of reality, and thus turned the presentation of ultimacy away from any meaningful reference to symbols of transcendence. While development is readily acknowledged in the advances of scientific acumen and its technological implications, these changes are not proposed

upon any teleological framework.

One of the most representative scientist-philosophers, Professor Jacques Monod, has indicated that the scientific disclosure of the fundamental meaning of nature's activities and structures must be accepted only on the basis of accidental or fortuitous occasions ultimately reduced to the random and mechanical combinations of atoms. The dynamism of the universe is without rhyme or reason.

In the past, philosophers and scientists have asserted the purposelessness of reality, but in our times the loss of transcendence in the religious sense of meaning accompanied by the scientific emphasis on reducing the nature of life to chance has produced a certain ultimate estrangement of man from the universe and himself. A cultural mood pervades his attempts to fathom life's meaning without the support of the belief in a final order or harmony or purpose to existence. Instead, a secularism has emerged whereby consciousness accepts the empirical limits posed by scientific rationality as the ultimate account of history and being. Man's cognitive capacities and spiritual potentialities are confined to his imaginative and technological manipulation of matter.

The nineteenth century portrait of reality as an evolutionary becoming, somewhat guided by man's belief in the law of Progress—a quasi-form of transcendence—has run into certain cultural events that have totally undermined this inheritance. Any abiding belief in a principle of coherence as a whole, affecting man's existence, has receded almost entirely from his attempt to organize his life in the twentieth century. There is no real order

surrounding man. The appearance of purpose and goal-like activities in nature are only surface appraisals of basically contingent and transitory entities without an essence or a final meaning. Man can only describe things not explain them, despite his urge to attempt the latter. The cosmos is blind. Man invents his systems of meaning in order to struggle through the vissisitudes and pluralistic tendencies of energy exchanges. Life is flux and consciousness cannot reach beyond the empirical situations of fact investigated by science. Aside from a kind of unofficial or ordinary experience of life, expressed in the variety of cultural interests, man must be content to cope with life without uncovering any ultimate meaning in the sense of fulfilling himself and explaining the orderly foundations of reality. There are no human experiences that could possibly intimate transcendence or transcendent values. There are no objective references to higher or spiritual levels of integration. Man is alone in a goalless, evolutionary process of apparently no end, in which death by disintegration completes his destiny. The formation of religious consciousness on these terms is a lost cause.

This prominent secular mood has not manifested itself over night. The apprehension of reality as finite and contingent received added momentum by the contributions of evolutionary theory, which claimed to eliminate any teleological significance to the processes of nature in its origin or destiny. In the successive chapters of its acceptance by scientists, some, like Professor Monod, hold that evolutionary theory is the only realistic interpretation of nature. Existence is an infinite field of chance.

In addressing this scientific and secular paradigm of cultural consciousness, the conclusion of Part One especially critiques the exclusivity that Professor Monod places upon what he considers the epitome of scientific consciousness. From among his peers, we note both evidence and theory that challenges the absolute denial of teleological categories as a viable mode of scientific explanation. At the same time, we have tried to demonstrate that scientific empiricism may be a legitimate approach to understanding material being, but it does not by the logic of its success preclude thereby other modalities of consciousness and ways of conceptualizing and disclosing the truths of reality, even within the plane of rationality.

Starting with the ancient Greek civilization and their attempt to interpret existence within the categories of mythic consciousness, we have selected what historians would allow as most typical writings that indicate the cultural beliefs of these people. Our point is not merely to indicate that myths were the vehicle of interpretation for them but that mythic consciousness was a permanent mode of interpretation within man's nature that allowed him to express his highest thoughts and feelings about the meaning of existence.

The dialectical dynamism between human consciousness and reality soon produced another perspective by which man could apprehend and express his understanding of his world. Logos manifested itself as reflective consciousness searching in its way for those expressive categories and symbols that could convey its interpretation of nature. While it is not possible to explore all the

factors and reasons for cultural change, the dynamics of culture seems to arrange moments where a particular paradigm of explanation becomes enshrined in the minds of the people to the neglect of other paradigms and modalities. We have tried to show how these conditions for change have mutually influenced the relations between nature, teleology and man's pursuit of self-realization.

In moving to the development of medieval values, we have selected among those Christian thinkers the one that Roman Catholicism approves as its most representative agent to describe the philosophical and theological perspective synthesizing the middle ages. From there we examine the factors that forced such a revolution in the understanding of man and his world that left behind forever the medieval complex. The modern era with its highly mechanized and optimistic trend of thought then offered its version of the meaning of nature and ultimacy with its accompanying implications for man's self-knowledge, implications that touch our lives today.

Part Two continues the critique by offering a general description of religious consciousness based upon the innate and unrestricted experience within man to know the totality of being and his attempts to symbolize its meaning. From this examination of the basic directions that the pursuit of ultimacy flows in reference to the pole of consciousness, and having examined the various eras that summarize man's pursuit, we hope to show that the dynamism of this quest reveals itself to be teleological in essence, even where its specific cultural presentation does not survive the dynamics of change.

The meta-story of Part One shows that in countering the prevailing cultural norms or paradigms of ultimate meaning, man in his historicity continually renews the quest for religious consciousness. In our era, as mentioned above, the tendency to completely dismiss religious symbols as subjective anachronisms is the underside of the ascending paradigm of scientific rationality that denies any evidence or possibility of transcendent goals for man. By determining the final limits of reality and consciousness, the scientific-technological paradigm of meaning and its consequential mood of pessimistic secularity have become a religious issue.

It is not their positive values that are our concern here; rather, it is the emerging conviction that man lives in a world without any real sense of the sacred or eternal order to things; that life is utterly relative, admitting short-term purposes only.

However strange it appears upon reflection, man's confidence in rational investigations of nature have uncovered, as Professor Monod insists, the absence of a rational order to the universe. The natural forces and energies are blindly moving in a mechanical manner without any design except by chance. According to this way of looking at things, man is without any experiential or experimental foundation for symbolizing an ultimate coherence to life. He is adrift in a constantly changing environment, making the best of the contingencies that chance deals him. The optimism of the nineteenth century crashed upon the social upheavals and dilemmas of our time. Consequently, history no longer implies an upward cultural development of value. With the scientific

endorsement of chance, an abiding sense of purposeless isolation characterizes man's final outlook on today's future.

Part Two takes up this lingering problem of cultural meaninglessness by reexamining natural evidence for traces of meaning that could substantiate belief in the formation of religious consciousness. Moreover, by using our historical survey in Part One, we propose that the source of this formation is the directed dynamism of man's self-conscious quest for ultimacy; that the framework within which man continually acts and reflects is teleological, with only the cultural content undergoing revision; that in every modality of consciousness expressed in our major delineation of cultural history, the same fundamental desire to know being in its plenitude persists undiminished by time and circumstance. Cultural history from this universal perspective provides an index then of those successive plateaus which man has reached in his efforts at forming this most comprehensive of viewpoints. The empirical data of culture with its behavioral consequences can be inspected. Cultural eras may present differing content of ultimate value but man remains self-consistent in pursuing the goal of transcendence. Each modality of consciousness contributes to the desire to know being. Each modality, as seen in our analysis of Part One, seems unable to subside until the experience of a comprehensive vision occurs that integrates all the coincidental manifolds or stratas of being. In a way, each is looking for a unified field theory that explains the mystery of life's dynamism.

Even where ultimate insights and paradigms have

opposed one another, there is a transitional unity that sustains a constant drive toward meaning. The failures of the past have a positive value in that they reveal the progressive dynamism still of consciousness to recognize the insurpassable limitations of attempting ultimate meaning within the borders of any modality.

In the final portion of Part Two we suggest evidence and theory that the possibility or hypothesis for transcendence, for fulfilling religious consciousness as an actual living experience, resides within man himself. And that the immanent source for this achievement is the teleological dynamism of his consciousness. In the unrestricted desire to realize ultimate meaning, whose presence surfaces in every major period of history, man is effective in this achievement to the degree that he chooses the appropriate ordering of those existential symbols that direct the inner transformation to its goal. Where he fails, the hunt continues. Our conclusion is that the proof or worth of this hypothesis lies in its testing the creative force of consciousness in the integration of those symbols that produce or initiate the process of transcendence, a process that would seem to include and yet supercede all the modalities of consciousness as expressed in cultural history.

Part One

Nature and Ultimacy as Themes in Western History

1

Mythological Beginnings

The Hellenic world was unhampered by foreign invasions from the eleventh to the sixth century.[1] Neither internal revolutions, imperial rulers nor temporal and ecclesiastic bureaucracies tampered with the emergence of Greek culture. The transition from *archaeos* to classic Hellinism developed without foreign interference, freely, so to speak, from aristocracies and widely separated local clans into the *polis*. The sociological and political structures were affected by the increasing population and the emergence of a mercantile economy.[2] Gradually, Greek culture was transformed into a colonization of small, city-states. The *polis* was the autonomous, nontribal community that required no national, complex administration. Citizenship was extended to all classes. In keeping with the insistence of independent self-government, the transition from the older forms was uneven. Sparta, for example, kept a rigid aristocratic constitution while Athens enjoyed an eventual urbanized democracy. It was not until the fourth century when the Macedonian hegemony consolidated its empire that the *polis* passed into oblivion.[3]

The golden age of Hellenic culture associated with the greatest city-state of Athens emerged out of the preservation of Achaean and Mycenaean cultural traditions that originated far earlier than the pre-socratic philosophies of the sixth century.[4] Among the earliest attempts to establish a continuity between the past Mycenaean society *Iliad* its descendants are the epics ascribed to Homer, his *Illiad* and *Odyssey*.

The Homeric Myth

In the cultural literature of his day, Homer stands as the personification of the whole body of epic saga. The cosmic portrait and the society of the gods and men symbolized in his epics communicated a common body of convictions throughout the areas of Asia Minor, Italy, North Africa and Macedonia. These two epics became a perennial source of mythic inspiration, influencing both religious and moral ideas for generations. Moreover, these stories have prevailed historically as being a descriptive review of cultural Greece at the time of its feudal aristocracies.

The primary resource for the materials of his two compositions lies, as it will for the Greek philosophers, in an older, immemorial tradition—the myths handed down by the Ancients.[5] While accepting their authenticity, Homer foreshadows a *divergence*, nevertheless, from the inherited tradition in that his stories, unlike those of his later competitor, Hesiod, do not center on the establishment of the cosmic order by the gods. Instead, he presumes the cosmos in general, and synthesizing the

mythic tradition with actual historical events, describes the Olympian pantheon as a reflection of the regimes and idiosyncracies of the kings and princes of Mycenae.[6]

Homer is not primarily interested in disclosing heavenly events occurring upon the divine sphere of activity. His concern is not theogony or cosmogony. The attitude of Homeric man towards his gods was in keeping with his anthropomorphic conception of them. In the sacral architecture in Greece, Sicily and southern Italy, one finds the basic proportions of statue and temple the same as those of man himself. The gods of the Homeric world were shaped like human beings, although they were far more ingenious, handsome and vital than ordinary men. According to W. Willi, "there was no ethical, no metaphysical, and above all no genealogical distinction between god and man. Only immortality separated them; but this immortality served more to legitimize the lineage of the hero than to establish the god as essentially different from man."[7] Human activity does not serve so much as a vehicle for a higher, divine purpose; rather, the stories of the gods narrate sufficient insight to explicate earth's happenings, especially for the ruling class—the chieftains and warriors of the Aegean world.[8] The common people were separated from the nobility by rank, prestige and power; so too, the gods from mortals. Homer spied the virtues and the vices, the ambitious maneuverings as well as the ruses and strategies—the normal prerogatives, in other words, of the ruling class in their zest for preferential treatment and accomplishment. Admitting that Zeus is the divine center, Homer still portrays him as a badgered head of the household amidst his sacred duties.

Impulsive by nature, Zeus is often harassed by his numerous relatives, thwarted by his spouse and intimidated by his progeny. He resembles a human father, who, in this case, happens to be a king and thus must deal with public opinion—that is, with his warriors and nobles [9] As an absolute monarch, however, the king could put aside established precedents, overrule his family advisors and insist on his royal prerogatives. Like an aristocratic king, Zeus' judgments were right not because they were correct but because they were his decisions

Homer seems to have transferred the drama of the court to the heavenly pantheon, including a little irony. For the myth portrays the gods, along with their other qualities, as capricious, vain and dishonest A Homeric hero, then—Achilles, Hector or Odysseus—is easily the moral superior of them all, even father Zeus Perhaps what Homer is pointing out is something very pragmatic that men do not worship the gods because they are good, but because they are powerful, better to play it safe with a ritual sacrifice than incur the wrath of a temperamental deity [10]

Even then there was no guarantee for history (as we shall see in a moment), and well-laid plans go astray as the whims and caprices of the gods have their unpredictable courses Anything of the nature of personal communion with the gods by men in general was out of the question, except for a favored few who were carried by the gods to Olympus during their life, but none after death. In the Homeric vision of eschatology, human immortality is highly questionable.

Moira: the Mythic Core of Homeric Eschatology

Homer's panoramic survey of the gods involves their relationships with men in a complete spectrum of feeling—victory and disgrace, hopes and tragedy. The entire field of response is recorded in the mythic tales. In the background, however, is a startlingly ambiguous factor, the intrusion of destiny or fate, called Moira.[11] The role of purpose and design in divine and human affairs includes Moira, who impartially accompanies every sort of scheme and activity, insuring both physical and moral boundaries in the universe. Gods and men have their legitimate territories and positions in the cultural scheme of things and transgressions release an unexplained compensatory process that eventually furnishes retribution. Homer weaves human purpose within this context of Moira. At times Zeus can only confirm Moira, thus indicating that there is something more ultimate than divine power.[12]

To appreciate the impact of Moira, one has to recall that the name means allotment or share, as well as death and doom. Later in Hesiod's presentation of myth, he describes Moira as a daughter of Night, who along with her sisters, Moirai, prosecute transgressions against gods and men and do not pause until they have exacted due punishment from the transgressor.[13] Moira, then, symbolizes a dark power who fixes decline and death.

While it belongs to the nature of the divine to assist, to bestow and to inspire, since it is one with the abundance of life, then death separates itself from life by an impassable chasm. Homer depicts the gods on the

side of burgeoning vitality, which the deities confront on all its sides. For man to encounter them, he must be active, moving forward with nature's dynamism. Then the gods can encompass the living with their strength and knowledge. The gods can do all things for the living except control the nocturnal aspect of existence, and all that necessarily leads to it. Their oneness with nature shared with mankind is in no way compromised by their inability to surmount the scales of Moira, for who can not stay in the path of life is no longer enriched by a deity.

For Homer, Moira personifies doom. She introduces only catastrophes and irreversible errors, such as the fall of Troy and the bitter quarrel between Achilles and Agamemnon.[14] There are moments and events which appear to be headed for destruction, and yet, at the last moment, a deity intervenes. These savings are "beyond Moira" *(hyper moiron),* in the sense that as the consequences unfolded, Moira had not appointed them for final dissolution. Once Moira decrees, the gods must withdraw.[15] There is no exception ever.

The Ambiguity of Destiny

The face of destiny does not imply fatalism in the myth. Homer never hints that events are predetermined. Destiny means eventual death, besides destruction and catastrophes, and though men and gods often feel frustrated by its appearance, it does not relieve matters. Death is not part of life, but it is part of order. Limitation and cessation, while alien to life and the creative productivity of the gods, are yet lawful experiences that affect the

entire cosmos. Nothing escapes the power of the gods, and nothing escapes fate. These two fundamental experiences intersect throughout nature, and Homer has a certain unresolved paradox connected with their mutual confrontation.

The gods are in charge of life. They attempt to temporize with Moira, fully realizing that her demands eventually overrule. Yet Homer never portrays Moira as stronger than the gods. He does not contrast them from that perspective. The gods, unlike men, possess a knowledge of when Moira will visit anyone, anywhere. She is not superior in knowledge to the gods. Once they know her shadow is approaching, they take their leave, for life has nothing in common with death. Hence the myth describes man's existence after passing through death—not in symbols suggesting a continuing vital force, but in those depicting a shadowy and misty realm.[16] Everything there is less than the imitation of life. In this underworld of existence, man measures himself only in terms of past images. Whether life is unconditionally preferable to death has no meaning. For the deceased, direction is only backwards, releasing an eerie melancholy from which all the magic of life has departed. Into the house of Hades, (the Zeus of the underworld), have come the dead to dwell forever—vigorless and hopeless.

While the idea of fate clarifies the idea of life, the myth is at a standstill over how fate, the negation of existence, can be an essential part of the cosmic, ordered existence, which the gods seek to display and preserve. Moira and the gods operate independently of each other. Homer does not theorize, but follows the pragmatic

trails of human existence from birth until death. And in some way history, with its tragic dimensions of human life, must still come under the domain of Zeus.

Destiny: the Ultimate Melancholy

One explanation may be that a certain static ambiguity is unremoved from the myth. Homer's presentation of the myth finds little to say about a dynamic historical orientation—in a word, the future. The divine-human operations present us with a theocratic culture that remains fully rounded. Hints regarding a qualitatively different future are not broached. The cosmic order and regularity have been fixed in such a way that nature's objectivity encloses history once and for all. Spontaneous and creative enterprises receive no importance for altering essentials in Homer's view of culture. The weight of the myth is always towards the objectivity of the world and its enduring processes, and not inward toward the myth of the soul with the possibility for unheralded potentials. The perspective on life gleaned from the myth is so tightly pragmatic that it does not leave room for a broader horizon of genuine progress that may not always be a repetition of the past.

Homer has so externalized the myth that there is little prospect for unprecedented development. To a great extent, the heroes, resembling the cosmic laws, are set in their biographies. Enshrined forever in their goodness or badness, [17] they are strangely unable to learn from passing through crises. The great Odysseus, for example, whose decades of wandering through an eventful life, beset by all

sorts of challenges, should have returned home with a presence and quality of stature that his departure twenty years before could have no grounds for anticipating. Instead, he returns home untouched by time, the same as ever. Throughout his escapades he had been counseled and assisted by the gods, urged on to complete his task. The thrust of life had been always the proving ground for him in his contact with the gods. But the heroes eventually go the way of the cosmos. Things wear down in nature. Man grows weary. Old age sets in. Consciousness dims. The buoyant energy of the spirit gradually loses its vitality. Man apparently is not destined for immortality—the natural condition of the gods.

While the myth carries a reverent awe for the prolificacy of life, it does not hide from the inevitable. Homer's sense of realism does not banish, nor gloss over, the inexplicable. Yet with all its affirmation of life, the ambiguities of the myth, necessary and unresolved, can lead to a pessimistic realism. The heroes are abandoned by their tutelary deities. Destiny will follow its own timetable which life can neither decipher nor overcome. The inscrutableness of the best of plans laid low, life verging away from its heroes (let alone the ordinary person), places a burden upon the myth that Homer admits is simply the perennial situation. Within man's world of order and goals runs a nullifying occurrence that persists at cross-purposes with the positive meaning of life. Teleology stays rankled: if the living Zeus decrees all, then how can Moira keep life unconsummated?

The Hesiodic Myth

While the cosmos is viewed by Homer as the context for the life both of gods and men (and thus more ultimate than either of them), nevertheless he still acknowledges the real ultimate, Moira, but leaves the meaning of death undeveloped. Posed by the myth, the antimony between mortality and immortality is now taken up anew by another Greek poet, Hesiod, whose major writings develop other strands of the inherited myth left untouched by Homer.

Let us first compare Hesiod's presentation of the myth in a synoptic outline. R. Lattimore remarks that for Herodotus, "Homer and Hesiod were contemporaries."[18] But Lattimore follows recent scholarship that tends to put Hesiod later, possibly into the early seventh century. In any case, Hesiod reintroduced other portions of the inherited ancient myths.

Less conservative in his approach to the sacred pantheon, he proposes a different set of symbols and arrangements which would give meaning to Greek life, not from the vantage level of aristocracy but more to the emerging, diverse classes of citizenry of which the author belonged in the role of farmer. A cultural transition is now magnified in the mythic symbols. For the first time, the divine ancestry is situated into a definite genealogy, thus emphasizing the initial primacy of the female principle, recalling the cultic, fertility motifs involving annual rites of seasonal passage.[19]

In Hesiod's *Theogony* one finds a type of causal thinking, clothed in symbols, but consistently portraying

generation as a real form of becoming. Nature gods come first, and by the device of mating and producing more specifically differentiated progeny, they determine the original stages of cosmological development. "In Hesiod's view," according to N. Brown, "the present order of the universe can only be understood as the outcome of a process of growth and change."[20] This process of divine emergence and differentiation comprises the most spectacular part of the independent activity of the gods. A cosmogenetic myth describing the panoramic dialectics involved in its history unfolds, reflecting cultural change.

Hesiod's other mythic presentation, *Works and Days*, presupposes the cosmic structure and ordination of the *Theogony*. For Hesiod, work and justice have to be the fundamental institutions of mankind's world. The emphasis was brought upon the author as he observed the social complications involved in a transitional period where the peasant classes wanted a share in the transforming of culture, and the aristocracy, resistently indifferent, continued its political and economic advantages.[21] Hesiod thus expounds his dignified view of human labor, its mixed blessings and hardships, tracing the problem of toil to its original crisis. The myth narrates how mankind once lived in a golden age without needing to work,[22] and how Prometheus' theft of fire[23] from Zeus brought retribution upon humans in the creation of Pandora,[24] the first woman, who ushered in grief and harassment into the world. Hesiod speaks for the man that Homer overlooked, the man in the streets, portraying symbolically the diffusion of power in the Greek city-states struggling for existence. These newer cultural formation were supported

by the capitalism of the merchants, farmers and craftsmen who were now competing for status with the leisured class.[25]

The Myth of Cosmic History

The mythic cosmogony assumes that there was something existing from the beginning. Some primitive substance was there molded into the universe. Accordingly, the universe begins from Chaos.[26] The story continues with the predominance of the powers of nature, whereby the various nature-personifications from the Sky to the Underworld are properly disposed only after a strenuous battle between the older and younger generations of gods. The prolonged showdown terminates with Zeus' superior forces of law (Themisto), justice (Dike) and preeminent wisdom (Metis). Having won the day, the universe is organized as the purposeful cosmos.[27]

The myth is constructed to show the divine cosmos under two different aspects: the historical process culminating in Zeus' supremacy, and the dispensation of his rule. The *Theogony* acutely dramatizes cosmic becoming as generation by progressive proliferation and differentiation. The entire process covers the divine, the physical and the human, originating in and sustained by an immanent creative energy called desire (Eros). Hesiod's understanding of life is not a duality between activity and inactivity nor between the forces of creativity and inertia; rather, the present tripartite structure of the cosmos has been the continuing and successive result of an ordered process of growth and change. Desire is that all-encompassing

primordial force intermingling with the Void and Earth to produce the cosmos. Earth, the mother, and Zeus, the king, are the beginning and end of the cosmic history, the direction of which process moves from a natural to a more anthropocentric order, allowing for the transitional stages of cultural history to be portrayed in the various heavenly conflicts. These tensions between the older structures and boundaries and those of the newer spontaneous and diverse expressions of creativity are here submitted (instead of merely annihilated) to the synthesizing power of Zeus' wisdom, the eventual ruler.

While still acknowledging the ultimate authority of Zeus, found equally in the Homeric myth, Hesiod removes its static repetitive quality by introducing creative proliferation, enabling man and nature to develop in multidirections beyond the limits envisaged by Homer. What opens up the future is Hesiod's subservience of Moira to a new goddess, Dike, the principle of just order.[28] Fate is now subordinate to the creative potentials of order. Nature is not so tightly bounded as in Homer's presentation. The cosmos is seen as inherently dynamic, full of latent historical tensions. Recurring polarities transfused throughout the world continue to rise and fall, teeming with change and stability. Zeus achieves his universal domination, among spontaneity and unpredictableness in his domain, not by brute might, but by astute recruiting, on a more political basis, the pre-existing forces contained in the universe. His normative insight is not repression, but like an experienced father balancing and resolving the family feuds, governing by positive direction and just order. The independence of Moira is transformed into obedience

to Zeus as the way to peace and order.

The everyday problem through the eyes of Hesiod is the city-states' necessity for establishing law and organization without doing violence to the people's free cultural development. Repression, refusing to deal positively with the creative and inexorable possibilities awaiting the citizens of the future, will only visit upon the land a continuous cycle of retaliatory violence and havoc. Hesiod admits the presence of unruly forces–those freakish and destructive veerings in both man and nature symbolized by the furious queen of battle, Athena. Yet one must remember that she was born, not from the earth, an unruly genesis, but from Zeus' head.[29] To insure that she would have an affinity for him in spite of herself and not be opposed entirely to his ruling, he took the precaution of swallowing Metis, thus making Athena the child of wisdom. Even the forms of destruction and war are subordinated and controlled ultimately by the ruling power of Zeus.

Likewise, the social structures and policies must erect and preserve themselves "according to nature," recognizing that the erratic displays of nature are always brought eventually under the guidance of Zeus. Nature becomes the prototype for society. In nature one often finds opposing forces bringing forth newer forms and hybrids that somehow reconcile the competition without destroying each other without trace. The leaders of society must be careful not to abolish unfailingly and unfairly the continual emergence of new cultural forms. The cosmos has more of a genuine future than Homer supposed. Consequently, the state must reconcile the old

and the new by incorporating the polarity into a new order, allowing for the freer exchange and interplay of roles and functions. The myth underscores political intercession which promotes creative reinterpretation within society.

Hesiod views the remoteness of the gods differently than Homer. Their distance allows for a new freedom for man. The poet himself exemplified this advance. His departure from the accepted form of issuing his poems anonymously—he claimed that the Muses[30] visited him and instructed him to compose—and his critical revision of the inherited tradition already displays a new independent spirit emerging with the new polis. The favoritism of the gods towards their heroes is a passing stage. Zeus has evolved history to a point where his just will, rather than fate or the pragmatic exigencies of placating the divine, becomes the dominant force operating uniformly, regularly, and pervasively throughout the cosmos. Zeus is no longer a magnified version of an Aegean king. The centrality of justice, the daughter of Zeus, is integral to his eternal reign. The myth portrays her sitting beside her father, thus placing her "in the context of the universal order guaranteed by Zeus."[31] She will complain to her father when men do wicked things. No unjust cause will triumph with her watchful eye. Sooner or later the wrongs and abuses will be righted. Exploitation and insubordination to the fixed order (*hubris*) will not go unheeded. The moral ambiguities of a divine order with unpredictable exceptions and favorites have receeded from the horizon of a new age of moral integrity, uniting both divinity and man under its stable progression.

Hesiodic Eschatology: Moira Clearly Subservient to Dike

In the *Iliad* (18.115)we are told how Achilles grieves over his forthcoming early death but finds consolation in knowing that even the powerful Heracles could not escape Moira. Hesiod contradicts this older presentation by pointing out how Heracles clashed with Moira and wounded her.[32] A mere mortal gained communion with the gods, overcoming death. Admittedly, he is the only exception mentioned. But how provocative! As Nilsson mentions, "it is the apotheosis. Heracles was a mortal man and became a god."[33] To what extent Hesiod meant this incredible triumph to be in any way paradigmatic of mankind, or even of a special group, remains undisclosed by the poet. Moira, while retaining her role, has certainly lost her autonomy. The insecurities and unanticipated failures of life recede from the absurd into the domain of divine order. Man is now freer and thus more responsible under Dike, recalling the echo of a lost era of blissful freedom with the gods.

Is Zeus' plan for history slowly regaining its former inheritance? Will the ultimate conflict—death—be transformed into a hope similar to Heracles' victory? No answer is fittingly rendered. Yet man is freer. History is more than a cyclic repetition of static forces. Man can choose among a rich and varied series of options readily available in society to promote cultural changes. Man can even opt to oppose Zeus. In fact, this horrendous choice had been made in the past, thus incurring a universal "Fall" affecting mankind in dire ways. The full

recapitulation remains untold. We are left like before with Homer's myth, except the gloom of fate's insecurity has been brightened and replaced by the knowledge that destiny serves justice. While Moira has no independent status superior to Zeus, the ultimate significance of death is not fully revealed. We are told that men will receive everything that is their due, a due that is measured by Zeus' justice. Given the orientation of the myth, the resolution of whether or not man can attain immortality is not an irrevocably closed issue. The definitive answer, like the myth, remains incomplete.

Myth: the Cultural Imperative

Belief in myth allowed the Greeks to find the significance of their age, for myth presented the divine and human models for interpreting human existence. The myth justified their world in terms of a theogonic, cosmogonic and theomorphic conviction. Life was not meaningless. Instead, there exists a cosmic order that permeates every level of reality. Nature, including mankind, and the heavenly bodies express a divine sanction depicted symbolically in the society of the gods. The myth provided, as for their ancestors, an interpretative framework large enough to include the entire ambit of their human experience. The myth's functional presence in consciousness illuminated the experience of participating in a cosmic reality in which divinity, the natural world and the various facets and segments of society coalesced meaningfully into a cultural totality. Even when the Greek philosophers developed linguistic forms that expressed fundamental

convictions about reality without using the mythical mode of thought, the mythic tradition was always presupposed and never completely abolished. Human culture in the Greek polis was evermore than its tangible immediacy of familial and commercial tasks. The events of daily life and human enterprise were enlarged by a symbolic objectivity that assured the people of their participation in a cosmic drama of sacred consequences: human life became a tangible microcosm of the divine vitality personified in the myth. It could be said, as Malinowski did of his Melanesian researches, ". . . there exists a special class of stories, regarded as sacred, embodied in ritual, morals, and social organization, and which form an integral and active part of . . . culture. These stories live not by idle interest, not as fictitious . . . but are to the natives a statement of a primeval, greater, and more relevant reality by which the present life, fates, and activities of mankind are determined, the knowledge of which supplies man with the motive for ritual and moral actions, as well as with indications as to how to perform them."[34]

Myth bore a scale of values that enabled the people to understand themselves beside the forces and movements of nature. It linked them to the mysterious, ancient past as well as to the unforeseeable future, while inspiring them to enter into a harmony with a sacred world order. Oppositions, antagonisms, even failures, were truly there in the context of life, but these features were not incoherent exceptions to the overall cosmic order. They were tolerable ambiguities that eventually yielded, in dialectical fashion, to the supremacy of law and wisdom. However sinister and threatening the human condition may appear,

whatever the ambivalent mixture of good and evil affecting the lot of mankind, the myth symbolized all these forces and phenomena, antithetical or otherwise, into an intelligible harmony measuring justice (Dike) to everyone.

The Evolution of Myth

The mythic inheritance in its transmission through history may undergo modification in its symbolic meaning. Again, not all of the rich tradition is necessarily conveyed at any one period. Homer's use of the tradition was aptly suitable to the one strata of society that dominated Greek history. On the basis of a projection into the future generations, his presentation is insufficient to anticipate, let alone meaningfully account for the future currents and cultural changes in Greek history. Within the consistency and the import of the mythic signification of the *Odyssey* and the *Iliad*—Greek civilization as Homer knew it—the emergence of Greek city-states and their decline could not have been conceivable nor appreciated.

The heroic age, so well epitomized by Homer, is still remembered but is no longer in prominence. Notable events have taken place that demand a reinterpretation of cultural reality, especially man's place in society. Enter Hesiod. His dramatic rendering of the myth portrays the significance of cultural change and development, allowing for new social emergents and latent commercial forces to materialize, while still maintaining the entire panorama of cultural transition within the guidance of divine wisdom.

The unpredictable diversity found in the cultural expressions of Greek society preceeding Alexander's

colonialization now had a rationale. The mythic symbolisms included a broad recognition of the origin, powers and latent energies of nature *(Theogony)* in conjunction with a new realization of man's basic worth in an enlarging non-aristocratic context *(Work and Days)*. These factors—nature's dynamic proliferation, and the new emphasis on the citizen's individuality—continually interacted to produce newer cultural forms in opposition to the more conventional societal patterns portrayed by Homer. Just from the economics of the time, the cheaper technology of the Iron Age permitted the growth of private property and investment. Politically speaking, kingship and its accompanying aristocratic structures were passing into the more republican texture of the city-states. The decentralization of political power and the rapid emergence of a mercantile economy stimulated unprecedented variations of social strata. Hesiod's achievement with the myth accounted for the new cultural differentiations and sustained a sense of cosmic security amidst the transitional forms of the life community.

Myth: the Foundation of Religious Consciousness

In providing a fundamental pattern for living, the myth, by its orienting, directing and motivating the total life of the community, would seem to derive its power from the inner conviction of its meaningfulness. That is, it functions in consciousness with those symbols that unite man's self-understanding with his experience of life in an ultimate context. For the Hellenic mind, myth connected everyday living with the divine cosmos. One's

life in society participated in a sacred order: the cosmos is alive with soul and intelligence (*zoon empsychon ennoun*, as Plato reasserted in the *Timaeus* 30b-c). Man's self-understanding, symbolized by the contents of the myth, could always be inspired by a tangible referent: the detectable presence of cosmic order witnessed in the steady movements of the heavens and the rhythms of nature. This teleological referent bore a consistent authority that insinuated the experience of participating in ultimacy. Whence the relationship of myth to the Greek religious consciousness. The daily, particularized experience of the cosmos united to its universal symbolization in the myth could evoke the conviction that the events of one's life possessed a sacred purposeness beyond its mundane and contingent appearances. Myth thus becomes the vehicle for religious consciousness, and from this perspective, mediates the search for the divine ultimate and the human ideal. Moreover, the life orientation of this search is simultaneously and integrally related to the establishment of the order of society or Hellinic culture. In this way then, myth, as the cultural imperative, symbolizes religious consciousness.

Examining the myth as a whole, one finds an unusual degree of freedom in the symbolic correlations to the changing social conditions. The implications of myth are more than just a designation as "mythopoetics" to indicate an idiom of literary expression or artistry. The features of Greek life are guided by the myth, and at the same time intrude upon the myth's capacity for expansion and alteration. For myth to be significant in the lives of the people, it must be able to integrate their experiences

of living with its symbolic intelligibility. It is not that Hesiod, for example, is superior to Homer, but that each presents adequate symbols of the life community that pertain to its cultural continuance in being.

In briefly reviewing the Greek inheritance, we have attempted to show that the expression of mythology may be located in time, while the vitality of mythic consciousness is not confined to the empirical circumstances of the Hellenic versions. Myth turns out to be a constituent of man's being and, as such, emerges constantly in his efforts to objectify his cultural standards of humanization. The Greek world was an important and typical synthesis of how man uses mythic symbols to record and direct the search for ultimate meaning. Fascinating as it is, we must leave the richer implications of a philosophy of myth and turn now to the development of cultural history, still within the Hellenistic era, but moving into a different level of interpretation: philosophy, or the presence of logos.

2

Philosophical Beginnings

In appreciating the changing and unpredictable circumstances of life that could have pressured for successive mythic interpretations over two hundred years, a series of unprecedented events from the sixth to the fourth century contribute a new perspective to the meaning of myth as a religious and cultural phenomenon.

During these two hundred years of cultural dynamics, there emerges, alongside of the uneven preservation of mythic thought, a reflective mode of consciousness that addresses itself to the same themes and content symbolized in the myth. In addition, a new contribution is made to the Greek heritage by the construction of a philosophy within the mythic framework. Due primarily to the efforts of Plato, it has bequeathed a lasting influence upon Western man's self-understanding. The debt the philosophers owe to the mythic foundations of Hellenic civilization is incalculable. The presentation by Homer and Hesiod, as E. Voegelin remarks, "was a spiritual and intellectual revolution; for inasmuch as it established the types of cosmic and ethical forces, as well as the types of their relations and tensions, it created, in the form of the myth,

a highly theorized body of knowledge concerning the position of man in his world that could be used by the philosophers as the starting point for metaphysical analysis and differentiation."[1]

From the sixth century in the Greek colony of Ionia come the earliest accounts of philosophical reflection. These ancient philosophers were theorists and men of empirical science. They had been instructed in the technical skill which had been introduced from Babylon, Egypt and India, and which enabled them to pursue their particular interests in astronomy and celestial phenomena. Although they made numerous calculations and collected observational data about eclipses and meteors, along with the peculiarities of their Ionian weather, still these intellectual labors did not satisfy their inquiring minds.

Inquisitively, they sought a first principle *(arche)*, a beginning that sustains itself as an explanation, that underlies the tangible objects of their investigations into the realm of nature or physics. In the review of his predecessors' investigations, it is Aristotle's contention that in restricting their pursuits these scientific philosophers were unable to obtain a clear notion of more than one—at best two—of the four causes that comprise a causal analysis of nature.[2] The majority of these pre-socratics, according to the stagerite's description, made a material cause the principle of everything. For example, Thales selected "water," Anaximander "the limited," Heraclitus "fire." Fascinated with the world of change and stability, the presocratic philosophers explored nature, gradually experiencing a differentiation of consciousness that developed a new method of speculation and a new form of expression.

Their self-reflective experience discovered that nature's order could be intelligibly explained by reflective concepts as well as mythical symbols of gods. Logos was born. A brief survey is in order here to show how these Greek thinkers sought to convince their followers that the logos in man could also express his experiences of ultimacy.

The Logos Experience of Ultimacy

In surveying the contributions of these men, we shall highlight as far as possible the normative insight that each proposed as the clarifying unity for their experiences of life. For the most part, our citing of these men will be a chronological task.

Thales. In assessing the constitution of the world, Thales believed that the cosmos is not only divine, but that the universal cause of everything is water. His assertion should not be entirely surprising, for the mythic tradition maintained by his Greek culture already indicated that from Oceanos, the god of the primeval waters, have sprung all gods and mankind.[3]

Anaximander. Agreeing with Thales that there is only ultimate substance in process, Anaximander differed from his mentor in noting that the sustaining *arche* of all determinate phenomena could not itself be determinate. In some way, while containing all contrasts and specific qualities witnessed in nature, it had to be other than these elements of actuality. That one *arche* without limiting characteristics he posited as the "boundless" or "unlimited" *(apeiron).*[4] The somewhat abstractive terminology introduced here is never completely secularized,

that is, removed from its mythic influence. While he does not personify the gods in his philosophical descriptions, yet Anaximander refers to "the unlimited" as immortal and ageless, the familiar phrase that Homer cites to characterize the gods.[5]

Anaximenes. In returning to the approach of Thales, Anaximenes thought his predecessor's principle of "the boundless" too vague to account for nature in her diversity. The problem of how the oneness of reality becomes the many goes unanswered. In the place of "the boundless" he selects air or vapor *(aer)*, and like Thales with his water principle, he considers air the divine substance out of which the entire cosmos is made.[6]

The Pythagoreans. Uneasy with the solutions of the Ionians over the problem of the individual behavior of things, the pythagoreans took a different tack. Instead of searching for a material substrate, they were inspired by their investigations in acoustics and musical harmony to apply these studies to the cosmos. They spoke of the cosmic harmony, associating order with form and shape, postulating that the principles of being were mathematical in character. Nature in its diverse patterns and laterations is the result of geometrical proportions and arithmetical multiples. The cosmos is a symbolic world of number or form. Much more intelligible than matter, "form" or "mathematical truth" became the essence of things.[7]

Their emphasizing mathematics as a fundamental function of human knowledge is curiously aligned with their religious association of *theoria* with *praxis*. Combining scientific research in their mathematic diciphering of the world with an explicit religious rule of life, "the

teachings of Pythagoras," Frankfort remarks, "belong preponderantly to the sphere of mythopoeic thought. This can be explained if we remember his orientation . . . . He taught a way of life. The pythagorean society was a religious fraternity striving for the sanctification of its members."[8] Pythagoras attempted to synthesize philosophy with the Orphic beliefs and initiation practices. Unlike the Homeric Olympian religion where only a favored few were carried to Olympus during their life time—and none after death—the Orphic tradition conceived man primarily as a fallen god who can be released by asceticism and sacraments from the prison of the body to regain his original divinity. The pythagorean affirmation of immortality connotes more substantiality to man's posthumous existence than Homer depicts in Hades.

Although he excoriates the poets like Pindar and Aeschylus for the irreverent treatment of religious issues, Plato remains greatly indebted to these religious and philosophical traditions in many ways, seen in his selection of form, for example, as the intelligible principle of the cosmos and his overt eschatology described in the *Gorgias, Phaedo, Republic* and *Phaedrus* dialogues.[9]

Heraclitus. A former member of the pythagorean society, Heraclitus views the world as ceaselessly striving for existence. Being is becoming. Nature's restless changes reveal perpetual transitions that are aptly symbolized by fire's conflagration *(ekpyrosis)*. Always in flux between tensional opposites, the cosmos is nevertheless directed by the divine logos that measures the temporary phases and transmutations of nature by an eternal standard. He retains his linkage to mythic thought by having logos use

Dike or justice to keep the strife of oppositions within bounds, distributing order and measure to the cosmic forces.[10]

Parmenides of Elea. In total opposition to the Heraclitean flux, for Parmenides "being" is the primal one—unmoveable, infinite and itself forever the principle of permanent stability. Change is nothing, growth is impossible. The cosmos is a homogeneous plenum within which motion is an illusionary appearance. In making the literal interpretation of the Olympian pantheon obsolete, the absolute oneness of being and god become identical.[11]

With Heraclitus and Parmenides, extending unto Aristotle, there emerges a more critical stance towards the mythic dimension of the cosmos. A re-mythologizing sets in, whereby these later philosophers (some more than others), openly debunk the anthropomorphism of their predecessors and the public cult of the pantheon, while maintaining the substance of the myth in its divine implications. Although the trend remains uneven until the full-blown abstraction by Aristotle, cosmogony and cosmology are becoming less dependent upon the symbols involving the mythic theogony. The mythic language is there in their assertions but it is being stretched to cover more rational and empirical categories and thus distances itself from the pure mythology.

The next generation of philosophers in the middle of the fifth century retained Parmenides' tenet that the *physis* is one and corporeal, but reject his refusal of the manifold of nature. For them, the oneness of being is not impaired by admitting the experience of corporeal plurality.

Empedocles of Sicily. Empedocles attempts to reconcile the permanency of the One with the evidence of change, which he thinks Parmenides dismisses too easily as illusion. Keeping Hesiod's terminology, he posits that instead of only one immobile plenum, there are four fundamental and eternal elements—the roots, as it were, of all things. Mutations arise from the simple combinations of these immutable particles. Interestingly, he retains a mythic description of the four: fire is Zeus or Hephaestus; air is Hera (Zeus' wife); earth is Aidoneus (another name for Hades); and water is Nestis (a deity of the sea).[12] The process of seasonal change, growth and decay is the responsibility of the two cosmic powers, again described mythically as Love (Philotes) and Strife (Neikos).[13] These active forces attract and repel the elements in the never-ending alterations of nature and its cyclic processes.

Anaxagoras of Athens. Anaxagoras agrees with Empedocles in the attempt to reconcile the Eleatic theory of being with the fact of change. But he does not think that the ultimate, immutable particles are the four elements. Instead, he asserts that beings are made up of many qualitatively different particles, although in experience one will predominate in order to produce variety in nature.

Thus he preserves the individual while allowing it to change into something else—as wood into fire and smoke, or food into living flesh. His prominence, as attested by Aristotle, however, comes not from being a variant interpretation of Empedocles' adaptation of Parmenidean thought, but from his introducing the divine mind or *nous* as that creative power that initiates the processes of nature from its primal commingling.[14] *Nous*

does not create motion but instigates the rotatory motion that accounts for the dispersion of things and their changes. In making the divine mind guide the vortex in a specific direction, the telic aspect of cosmology begins to emerge, while its full explicitation has to wait until Socrates. In fact, in studying cosmology, Socrates mentions his disappointment that Anaxagoras never reflectively plays out this insight to full advantage when he had the opportunity.[15] Even Aristotle mentions how Anaxagoras uses his insight without consistency, often employing it as a *deus ex machina* resolution when he could not explain certain aspects of nature.[16]

The Atomists. The efforts of Anaxagoras and Empedocles in preserving being with motion and design were met with the atomists' rejection of a final cause for the exaltation of change. In a way, Empedocles with his four elements mixed together to form complex beings, may have prepared the transition to the wholly mechanical vision of Democritus and Leucippus, the founders of Atomism.

They eliminated the vital principle inhering in bodies as in the hylozoism of the Ionian philosophers, and the symbolic representations of love and strife of Empodocles, along with the *nous* of Anaxagoras. Motion now was explained as the result of absolute necessity. For them the only basic realities are the "atoms and void, and the various universes, of which there may be many, and all individual things in them, are simply produced by chance comings-together of atoms in their endless movements in the void. This applies to the human soul and the gods as well as everything else."[17]

The world represents a vast machine with eternally existing atoms or dense, impenetrable bodies, always in motion with unlimited opportunities for combining and dispersing. Finality or teleology is a veil of appearance that results from the mechanical interplay of atoms colliding from fortuitous convenience in the void. They converge by chance and disband by chance. Any temporary equilibrium emerges from the concurrence of mechanical collisions over a period of time whereby these atoms accidentally affix themselves into a composite whole. Chance is not understood by the atomists as the unforeseen impedence of determined activity. On the contrary, there is no way for accidental occurrences to interfere with a definite process, for nothing is ever intended. Teleology does not exist in reality.

The world happens from uncalculable, blind forces. The imperceptible and impenetrable atoms have no inherent principle of dependence. Their changing occlusions to form beings arise without purpose or design. Yet these atoms bear divine imprints, strange as it may seem, for they are eternal, unchangeable in themselves, and self-sufficient. Aristotle attributes to Democritus the doctrine that chance explains being, and, since he neglects the final cause, all natural motions occur by an unplanned necessity.[18]

Since everything is by necessity, there is no room for chance, actually, and yet, at the same time, the latter is the only explanation of everything. Mentre points out that: "to say that chance is nothing is the same as saying it is everything, that it is the active god of things; nothing is indetermined, but everything derives from indetermination."[19]

Epicurus. Later, after Aristotle and the Stoics, Epicurus reinforced the anti-teleological worldview. He improved the rigid determinism of his predecessors by introducing the "swerve" theory, in order to justify some semblance of human freedom. The diversity in being results from the normal linear fall of the atoms through the void occasionally and spontaneously curving from their course and colliding into entanglements. From absolute determinism to absolute indeterminism was guaranteed by this new addition. Armstrong remarks that it is "absolutely necessary that atoms and void should behave according to their nature. But Epicurus recognizes arbitrary undetermined chance as a separate principle alongside physical necessity."[20] Order issues out of chaos. Posterity has preserved his philosophy from the inspirational pen of Lucretius in the *De Rerum Natura.*

Socrates of Athens. From Socrates to Epicurus, however, there was an increasing resistance against the Atomists' explanations. Left unchallenged, the serious introduction of chance as an all-pervasive principle would shipwreck the mythic inheritance of the religious dimension, not to say its destructive effect upon the notion of the world as cosmos.

Although Socrates' career indicates that he preferred moral matters to the study of cosmology,[21] what he taught about the *telos* later came to fruition, in different ways, in Plato and Aristotle. His own interest in it was mostly devoted to the teleological function of morals. This emphasis on understanding man as a moral being must not be focused just to the acquisition of particular virtues, but in a composite sense whereby the intellectual and

moral virtues support and fulfill the examined life. A life of virtue impells man to his self-realization. The end of every natural process, in man or nature, is always a natural good that brings the nature to its fulfillment. In man this process follows a dialectical inquiry into the nature of the good and the true, allowing man to voluntarily complete his nature as he accepts responsibility for his newly-found knowledge. As mentioned in the *Phaedo*, the telic character of man's self-development is in the foreground of a world that in its cosmic movements and natural effects is directed by beneficent powers. While remaining somewhat ambiguous on the details, Socrates has joined for the first time the notions of teleology with providence.[22] The finality inherent in the cosmos and its inhabitants brings together these two notions, but its elaboration must wait for Plato's theory of creation and human destiny.

Plato. Plato follows his mentor and presents his appreciation of the orderly cosmos especially in the *Timaeus* dialogue. The corporeal world moving in time and space can best be described in mythological language *(eikos mythos).*

As the sacred story unfolds, one learns that a divine craftsman (the *demiourgos*), fashions an already existing amorphous mass moving in a disorderly manner (the *chaos),* into a world-soul, and the material elements which constitute its body into a living organism.[23] The *demiourgos*, strictly speaking, is not a creator god. The cosmos proceeds, nevertheless, according to a plan or pattern *(paradeigma)* derived from the divine realm of the forms or eternal ideas. The paradeigma cannot be seen by the *logos* of man in its eternal being but only as embodied in the

cosmos. The world is an *eikon*, an image of the eternal model. The role of the *demiourgos* is, as Hooykaas states, "a regulating power bringing reason into reason-less matter, rather than a creator in the biblical sense."[24]

Strangely, cosmology cannot be a science. The fact of mobile matter—the region of becoming and decay, the experiential data which provoked such controversy among the philosophers seeking a scientific answer to its restless presence—disqualifies itself, in Plato's eyes, from certainty in truth. Man's scientific mind, whose goal is certain truth, is not made for such flimsy attractions.

The generation of the cosmos was a mixed result of reason and necessity.[25] The latter Plato understands as matter, blindly determined by necessity, that is, purposeless. Still, the natural world is pervaded with the mathematical and harmonic relations of the world-soul, which subdues the intransigent stuff as best as it can. Matter, being associated with chance or the errant cause, flaws the world at times. Nevertheless, the world is good, beautiful, orderly and, unlike the mechanistic portrait of the Atomists and the Sophists, images the supremely intelligible mind that intended it. The *demiourgos*' motive was nothing less than that the cosmos should symbolize him as closely as possible, given the limitations of the matter available.[26]

Although teleology abounds throughout Plato's dialogues, Aristotle still criticizes him for using only two causes in his explanations of nature's purposefulness: the formal and the material.[27] W. K. C. Guthrie points out that there was no difference between Plato and Socrates on the matter of the final cause. In fact, "a genuine cause,"

Guthrie insists, "must for Socrates be a 'final one,' the telos or end in view, and Plato represents him as finding this in the forms, which combine formal and final in one."[28] And there is the remark in the *Laws* (966e) where he tells us that all motions arise from conscious awareness of an end. One cannot help but wonder why Aristotle insisted that Plato omitted the final cause among the principles of being.

Plato makes a radical departure here from every one of his predecessors. While admitting that the heavenly bodies, along with all the tangible inhabitants of the cosmos, variable in beauty and utility, form a grand *eikon* of the ultimate, supreme god, still the intelligible world—the sublime realm of forms—is coterminous with the order of divine existence.[29] Plato clearly marks for the first time the transcendence of the divine realm. The tangible realm of the *physis* is not divinity. The physical world of the pre-socratics is by its very constitution never in contention with the immutable and eternal realm of God. For Plato, the tangible world of the senses is essentially symbolic of a higher order, pointing human intelligence beyond the ceaseless mobility of matter and its configurations to contemplate the distant archetypal ideas palely reflected in matter.

Just the reverse is the true state of man. While there is an unbreachable separation between matter and divinity, no indissoluble chasm exists between man (who is essentially the spiritual soul), the psyche, and divinity. Thus, man has divinity within himself but fails to recognize its presence. His rational faculty, in conjunction with his bodily senses, is too weak in its power of apprehension.

The corrective to this frail condition is the path of philosophy. The divine superabundance of intelligibility is too realistic for the untrained faculty of reason to apprehend. But the inclination to the rational good, to follow a life of philosophical reflection, gradually overcomes the limitations that the ordinary man meets in attempting to understand the world at large and his personal destiny.

Hackforth remarks that the divine is a kind of continuum spread throughout the cosmos as a whole.[30] Beginning with sense impressions, man moves ever more toward the intelligible, departing more and more from a material context of experience. A philosophical ascent opens whereby the dialectics of reasoning turn eventually into a religious ascent, for man's search for the intelligibleness of being is his search for the absolute divine. Plato thus constructs a philosophy of religious consciousness that concludes in the practical realization of its goal: immortality among the gods is to possess the wisdom that philosophy pursues.[31] The path of philosophy opens into a teleology of self-realization.

Aristotle. With Aristotle one moves from the theogonies of the myth to a theologia. The study of the gods has become, as also for Plato, a philosophical enterprise. In his treatise, *First Philosophy*, or more commonly known as *Metaphysics* Aristotle makes a threefold division of scientific knowledge into physics or cosmology, which encompasses all the tangible realm of the cosmos—mathematics, an abstract science dealing with imagined matter as in number and the relations between figures as in geometry, and theology. Following the lead already provided by Plato, Aristotle equates the pursuit of metaphysics

as the study of being qua being.[32] Metaphysics, in other words, considers the most intelligible of subject matters: the constitution of being itself in terms of its ultimate principles. Wise is he who studies the most profound subject matter, for the lover of wisdom will desire to know about the ultimate cause and nature of reality.[33]

This quest to know the ultimate reality, or being in itself, involves Aristotle in carefully trimming away the imagery and narrative qualities of the myths, thus leaving the implied bare processes and event of the cosmos that lend themselves to the more systematic inferences using less dramative and more abstract rational categories of thought.[34] He analyzes these basic features of being from the most universal perspective permitted rational discourse. He will study everything from the point of view of the principles and causes of being qua being. The theocentric character of this science, according to J. Merlan, is brought out in the equation that being qua being means divinity: "When Aristotle speaks of being qua being, ancient readers up to the time of Plotinus seem to mean: only of God can it be said that He is, whereas everything else is not only being but also becoming."[35] The theocentric core of the myth is preserved.

Agreeing with Heraclitus that change is manifested alike in physical motion, in the growth of living organisms, in man's moral and intellectual development, what could be more obvious than the flux of life?[36] But sheer change is impossible to conceive. Life is not wholly indeterminate and void of form and stability. Concrete individuals, while they may undergo changes, nevertheless reveal sufficient stability and definiteness that enable

reason to grasp them as individuals with a universal nature, a *physis.*

He also agrees with Plato's emphasis that the form or universal dimension of things is the object of scientific knowledge.[37] But he will not allow the forms of nature to reside by themselves in some transcendental realm disconnected, as it were, from their terrestrial moorings in the sensible world of human experience. Instead, the forms are essentially immanent within things, belonging to the heavenly bodies as well as to changeable beings. A natural entity resides with its own form and complimentary matter. In a living organism, form is the entelechy that unfolds and organizes matter into becoming the specific nature that distinguishes the entity.[38]

Copleston has remarked that "the Ethics of Aristotle are frankly teleological."[39] To restrain this judgment only to moral activity would overlook how pervasive is the conception of form as the end or immanent purpose of change and development. For Aristotle, it is true that in examining the phenomena of nature everything tends to fulfill its specific essence or form. Hampered though it may be (and sometimes deficient in its results), nature manifests a dynamic process that for the most part achieves completion of individual natures. By allowing for nature's mistakes or failures, Aristotle acknowledges the margin of chance and avoids the formal rigidity of the Atomists' determinism.[40]

It is equally true for him that in all the sciences, theoretical as well as practical, and in his theories of art, rhetoric, drama and politics, the complete explanation of reality perforce requires teleological categories. The

panorama of the cosmos, through all its details and proliferations, is interpreted as the progressive actualization of the potential to receive form. A philosophical investigation of reality discloses that these forms spread themselves within a hierarchy of species, realizing themselves in a spectrum of variated existence, all drawn in some mysterious manner by the ultimate immaterial formless, the final cause of the universe, the supreme unmoved mover—God.[41]

From the primal fact of motion in the cosmos, Aristotle argues in the culminating eighth book of the physics that to escape the infinite regress of dependent causes, there must be an eternal first mover, who, he goes on to describe, is living, most good and enjoying an eternal activity of self-contemplation. In this absolute transcendence, God draws the world towards himself as the goal of his desire.

This telic process is not quite the same as in Plato's version. In the *Timaeus*, God is the eternal knower and the independent Forms are the eternal, immaterial archtypes of being in all its diversity, but existing autonomously by themselves. The Forms, then, are the standards to which the divine craftsman looks to model the cosmos. Plato has the *demiourgos* acting more as an efficient cause and the separate Forms as the formal and final causes. This separation between the divine knower and his objects of contemplation is eliminated in Aristotle's telic version of the unmoved mover's conscious life and his relationship with the cosmos.

Admitting the Platonic theory of transcendental forms, Aristotle denies their separate, autonomous existence and places them within the self-awareness of the

divine intelligence. The forms are the immanent ways in which God contemplates, their dialectical structures being the articulation of his thought. Being both subject and object of his own infinite self-knowledge, he contemplates the forms which are the categories of his divine consciousness. Being the highest and best activity that can be exercised in reality, his self-contemplation inspires the cosmos with desire for it and the nisus towards reproducing it—everything in its own way and to the degree possible. From the acorn becoming the oak tree, or the child achieving adulthood, to the placement of the immovable stars and the eternally fixed motion of the planetary bodies, the cosmos is following its teleological course, drawn continuously through the ages by the eternal divine intelligence.[42] Teleology for Aristotle is more than a useful concept; it is a universal characteristic of being.

The Relationship between Myth and Philosophy

Few histories of philosophy would deny that the early stirrings of Western philosophy have begun in ancient Greece. Yet it is surprising to find that modern authors minimize and even attempt to sever Greek philosophy from its mythic origins.

Philosophical reflection for the Greek mind is inspired by a tradition positing an image of the world in its totality. The various strands of this common tradition existed and were accepted, long before the schools of philosophy and science rendered their interpretation of reality. In the *Phaedrus* (274-c), Socrates insists that the ancients already knew the truths of life and formulated

them in myth. In reading through the dialogues, one can hardly ignore Plato's reinteration of myths as a source of inspiration for his philosophical excursions. Western philosophy was not only born out of the myth—those treasured doctrines that unveiled the meaning of the cosmos as well as the historic destiny of mankind—but presumed the myths as in a religious context. Among the ancients, even Aristotle, that most rational and critical of men, emphasized that according to the forefathers of myth the entire realm of nature is surrounded by the divine.[43]

Almost in unison, then, the ancients saw that the mythic tradition must be honored by anyone attempting to philosophize. Unlike the more rationalistic impulse, say, of the seventeenth century, the ancient philosophers did not view the progress of philosophical consciousness as a rebellion from tradition. These thinkers sought to preserve an intimate and necessary connection between logos (the act of philosophy proper) and mythos (the inherited tradition) unimpeachably sacred, and therefore surpassingly true.

H. Frankfort exaggerates when he mentions the "peculiar intellectual courage" of the Greeks which allowed them to "discover a form of speculative thought in which myth was entirely overcome."[44]

The same can be said, only more so, of F. M. Cornford, when he states that "after the primitive stage of genuine mythmaking . . . there may come a time when rational thinking consciously asserts itself and the foremost intellects of the race awaken out of the dream of mythology. . . . This happened in sixth-century Ionia and what the Western world calls philosophy or science was

born."[45]

That truly mythical thought passes beyond concrete images in favor of rational thought after a single, definable transitional stage is aptly summed up by W.K.C. Guthrie: "The birth of philosophy in Europe, then, consisted in the abandonment, at the level of conscious thought, of mythological solutions to problems concerning the origin and nature of the universe and the processes that go on within it. For religious faith there is substituted the faith that was and remains the basis of scientific thought . . . that the visible world conceals a rational and intelligible order."[46]

In examining the mythic narrative of the Greek poets, one does not find a haphazard amalgamation of irrational scenes between gods and their fickle relations with men loosely strewn together for cultural assimilation. Without denying the ambiguities throughout the mythic tradition, one can discern, nevertheless, a symbolic representation of intellectual shrewdness, as seen, for example, in Zeus' patiently clever triumph over the powers of obstruction and disorder. In a very gradual, astute manner, Zeus achieves a certain check and balance that keeps the disruptive forces from turning the cosmos back into chaos.[47] Guthrie's insistence that "pre-philosophic man" could not discover "a rational and intelligible order"[48] is unsubstantiated by a close examination of the mythic tradition. One does not have to await a Plato or an Aristotle before recognizing a cosmic intelligibility depicted in the cosmogonic myth.

Modern authors would go too far in their strict, hierarchical and chronological separation of myth from philosophy. The division between them is not as definitive

as the mythic language found in philosophical statements would show. While most philosophers reject the anthropomorphism of the mythic deities, there is no consistent evidence that the religious symbols nor the significance of myth as such is pronounced "primitive" or a "fantastical" affair of immature minds. Even Plato notes the opprobrium brought upon the gods in the minds of citizens by the poets' extravagancies, but he does not dismiss mythic consciousness as a bad dream.

More than any other Greek philosopher, Plato retains the myth in full force with the pursuit of philosophy and ultimacy. Mythos and logos are distinct, but always connected. He remarks, for example, as have his predecessors (except for Parmenides), that the mythic description of Oceanus—the great water principle of Thales, the source of gods and men in the *Iliad* (14.201,302)—can be interpreted anew, philosophically, to indicate that everything in nature results from a flowing stream of change *(Theaetetus* 152e). For Plato the reflective effort of philosophy does not so much "overcome" myth as it extends the continuum of knowledge, while keeping its inseparable origins *(archaeos)* in mythic consciousness. Philosophy in its way becomes a rational articulation of mythic consciousness.

In examining the *Republic,* the *Phaedrus* and the *Timaeus*, one finds that Plato brings into the organic connection of myth and philosophy his notions of divinity, man and cosmos, as essential to creating the polis. Since the nature of the soul or consciousness *(Phaedrus* 245c) is immortality, and since the cosmos is truly a living creature likewise endowed with soul and intelligence *(zoon*

empsychon ennoun. Timaeus 30b-c), Plato understands the cosmos as the cosmic projection of the soul. Man seems to be and act as an individual, but a truer estimation is that human consciousness is a cosmic substance—the idea or form of the cosmos itself. Man-in-the-cosmos resembles the larger forces of nature as a pulsating movement toward achievement and decline. He participates in the cosmic drama of emergence and dissolution through his own growth, affecting cultural consciousness, which reflects the serene and stormy movements of the universe. Just as the *Timaeus* projects man's soul upon the cosmos, so in the *Republic* his soul is projected upon society. Society declines. Cultural changes take place. New interpretations are taught about reality. Plato sees these events as reflections of the level of consciousness in men.

In creating his new myth of man, Plato illustrates his vision of reality by rejecting Homer and Hesiod. It is a conflict in one's state of awareness. Those mythic messengers proposed a series of symbolisms that truthfully expressed the cultural consciousness of their time. Yet myths can become obsolete. Plato dismisses the poetic symbols in terms of their bizarre descriptions of the society of the gods, since they bring ridicule from the people and, what is worse, undermine their belief in the truth of the myth itself. In their memetic portrait of man and divinity, myths were too far removed from reality to justify their continuance as part of the education of the polis *(Republic* 598d-600e). Moreover, they were not aware of the new truth regarding the immortality of the soul. Thus their problems with death and Moira.

Plato points out in the *Phaedrus* that growth in

philosophical awareness produces conflicts between older and newer ideas and perspectives. The level of consciousness alters, necessitating a newer expression or arrangement of symbols signifying the acquired insight. The symbolic forms change under the pressure of new knowledge. The former myths correlating self-awareness with one's understanding of the cosmos need revision. Life is the occasion for man to perform his self-exploration, his self-inquiry, the *zetema* (*Republic* 368c). This self-inquiry, the search for wisdom, brings about experiences of greater and greater insight which must transpose themselves for communication into a newer or revised set of symbols. The knowledge of the order within consciousness, obtained through *zetema*, is an event that takes place by the soul growing into it. The welling up of the myth within man's consciousness continually augments his logos. In this way, philosophy and science respects the order of consciousness as symbolized in myth.

Through self-inquiry, the opposition of the new myth to the lesser forms of yesterday also brings the insight that these older myths expressed truths of the soul for their day—merely in a less differentiated manner or level of consciousness. The philosopher's duty in fidelity to his level of understanding submits a new set of symbols signifying the acquired insight. Stirred by the myth-making forces of his soul, man gradually elevates his understanding of the meaning or logos of reality, until he finally recognizes that myth is the symbolism of his soul.

For Plato the experience of mythic insight and the growth of philosophical meaning accompany each other as self-inquiry continues. The maturation of meaning in man

takes place only when he attempts the program in a holistic manner. The *Phaedrus* (246 ff.) points out how that process must involve the entire man—body, mind and spirit, or *soma, nous* and *psyche*—all functioning in an organismic way. For Plato human life is a process of increasing self-consciousness, whose experiences are expressed and recognized in the symbols of the myth. As the forces of nature are repeatedly in competition to attain their proscribed goals, so man, in his constant internal growth and in his relationships with society, will meet all those cultural forces that can accentuate or smother his self-inquiry. The internal dynamism—the myth of his soul—impells him to face these opposing issues of destruction and order, both in himself as well as in culture and cosmos, seeking for a resolution. Here the goal of human growth and the finality of the cosmos are identifiable in the myth of the *Timaeus*. Man is to achieve the experience of immortality, to live the life of the "good gods," and thus understand one day that the cosmos is a finite reflection, a symbol, of the soul's infinite consciousness.

Equally so, in the *Republic* Plato attempts to show how the idea of culture, the good polis, was both a paradigm of divine construction as well as an elaboration of the well-ordered soul. In the *Timaeus* one finds that the account of the polis given in the *Republic* must be treated as *en mytho* (26c). In the *Timaeus* myth is the symbolism of consciousness as a totality, thus including cosmos and culture, nature and man. Culture will then feel those rhythms and seasons that are part of the nature of reality. But the central symbol throughout is the soul, which has

furnished the model of order for both cosmos *(Timaeus)* and culture *(Republic)*. The realms of being are fully pervaded by consciousness. The order of the cosmos is consubstantial with the order of culture and of man. Man's problem is to recover conscious remembrance *(anamnesis)* of the soul's cosmic nature, a remembrance that is evoked by self-inquiry and stimulated by the mythic symbols.

Summary and Conclusion

The decisive belief about reality for the Hellenic people was that they lived in a cosmos that was the great society of the gods. The world as a creation of the gods and as the result of natural causes is fused together in Greek culture, and associated with heroic figures of the past whose careers and exploits portrayed various arrangements with nature's forces and the will of the gods. The strands of this fundamental conviction were communicated among the people by a series of stories, considered sacred, depicting primordial events and episodes elaborating upon the cosmos in all its ramifications.

These sacred stories, the myths, expressed more than imaginative descriptions of the cultural patterns men were to imitate. In their cosmic scope, they freed men from their sense of contingency and daily limitation struggling against the awesome forces of nature and fears of destiny. Myth provided the ultimate meaning, purpose and proper ordering of life. Myth conveyed the feeling that the universe, even though one may not understand it completely, is nevertheless coherent. The myths communicated and reinforced a symbolic experience of participating

in a cosmic and sacred world in which the gods, nature and culture blended together in life-enchncing ways. Attunement with this cosmic order guaranteed true humanity. In the days of Homer and Hesiod, then, men expressed their experiences of ultimacy in the symbolic realism of myth.

Later in their history, and without dispensing with this cosmic belief, some Greeks began an investigation of life. They preferred a perspective and a terminology less dependent upon the narrative symbols of myth, and proceeded to found a method of speculation whereby their experiences of the phenomena of the world could be expressed readily by means of rational concepts and discursive logic. The experience of nature's order was available to reflective categories of thought rather than by mythical symbols only. A differentiation of consciousness has ensued. Meaning has expanded itself into the modalities of logos: philosophy arises from the mythic forces of consciousness. Thus, the realm of philosophy does not necessarily undermine the contribution of mythic thought. It reinterprets those same experiences of reality that relate to the myths, the logis exploring what is already guaranteed by the *mythos.*

The myths had given a finality to Greek culture by providing a direction to consciousness in its pursuit of ultimate meaning. Because the mythic tradition was so fundamental and comprehensive in integrating the facts of life in a positive and enriching manner, the Greeks accepted it with the quality of ultimacy. Equally, now, the occurrence of philosophical meaning—the love of wisdom with its discursive patterns of methodical expression—

presented itself with similar recommendations. It would seem on the surface at least, that two authentic expressions of consciousness would try to annul one another.

The Quest of Ultimacy in Myth and Philosophy

The two most articulate philosophers, Plato and Aristotle, approached the problem of religious consciousness in its relationship with myth and philosophy in different ways. We shall allow these two Greeks to represent the culmination of the Greek resolution, since both critically incorporate the findings of their earlier predecessors.

Aristotle acknowledges the cosmic conviction and the debt that philosophy owes to the mythic tradition. Beyond this sincere accolade, his rational speculations, in principle, refuse to incorporate the traditional religious imagery that is customarily found in myths. Yet, he incorporates the mood and the perspectives of myth. He prefers, nevertheless, to explicate his experience of man, nature, culture and ultimacy by means of scientific-philosophical disciplines. Logos for him means only the array of rational interpretations that comprise the whole of systematic philosophy. His methodologies led him to investigate being and express his rational findings without direct reliance upon the mythic symbols employed by Homer and Hesiod. Logos achieves a prominence formerly accorded to myth. With the purging of the pantheon, Aristotle removes the polytheistic tendencies that range among the people's imaginations, and replaces at the conclusion of his natural philosophy and metaphysics, a

single, eternal divinity. All the sciences can aid man in the eventual discovery of this prime mover and source of the intelligibility of being. Methodical research into the empirical clues of the cosmos can disclose their ultimate dependency upon the divine consciousness.

The tenor of being, aside from the rarity of chance malfunctions, is entirely teleological. The dynamics of the cosmos follows a divine plan. From the lowest species of matter and life to the divinity itself, Aristotle's conception of existence always bears reference to finality. Individuals persist in existence in goal-directed ways that reveal their natures.

The growth and stability of species displays for Aristotle a hierarchically-ordered world, whose description by the myth has now been transposed into the logic of philosophical categories. Man is a teleological being, understanding himself by ordering his thought and action towards his fulfillment. Like everything else in the cosmos, he resembles divinity, but unlike the rest of the world that strives instinctively to fulfill its nature, he does it self-consciously. He chooses to oblige his nature. The goal or finality of his nature is nothing less than the self-conscious approximation of divine wisdom.

Man performs this achievement by living a life of deepening contemplation, whereby he enjoys the exercise of the highest ranges of intellect *(nous)* upon the most noble of objects. Here religious consciousness and human happiness converge: in his life as a philosopher, man most imitates divine wisdom.

Plato's Retention of Myth for Developing Religious Consciousness

Plato, on the other hand, presents a unique association between myth and philosophy. Philosophical inquiry presumes the cosmogonic myth, but not as a distant acknowledgment to tradition. Philosophy, science or any form of logos are in reality differentiations of self-consciousness in its dialectical interplay with the world at large. The experience of life can be absorbed and translated into various patterns of communication without necessarily annuling others. Plato recognizes that at different periods of man's investigation of life, certain categories of thought or symbols may take precedence in his mind that best convey the meaning of his experiences. Culture itself can symbolize the collective unity of many understandings of life within the community. But times change, and men continue to mature or decline. Likewise for society. In recognition of this universal phenomenon, Plato retains mythic consciousness as an essential horizon within man's nature, containing within itself both the symbols of its current interpretation of life and an indefinite depth (Heraclitus) and height (Parmenides) of inherent power that can lead the soul to unlimited perfectibility.

How is man to remind himself of these possibilities residing within the possibilities of his soul? For there are human experiences yet to be endured within and beyond history whose anticipation cannot be expressed in less than mythic form. *Logos* is often too literal in its meanings to express, for Plato, the dynamic continuity between

self-consciousness, culture and the cosmos—especially in its historical developments. Only myth can begin to express the mode of being of self-consciousness as process and result. For man is that special kind of being that is enabled to explore his own nature and discover that his life principle participates in the eternal power that orders the entire cosmos.

Moreover, Plato clearly assures man that his consciousness possesses an ontological validity which survives beyond its conditions of concrete vitality in the finite world. As we are told in the *Phaedrus*: "All that is soul is deathless" *(psyche pasa athanatos*, 245c). Man is called to participate in a deathless vision that takes him beyond the restrictions of time and space—a transcendental realm *(epekeina)*, no less. Plato characterizes the immanent dynamism that makes this ascension from matter a real possibility as a "heavenly growth," whereby one takes responsibility for developing those immortal qualities that reflect the eternal essence of consciousness.[49] Plato sums up this task of fulfillment through self-knowledge by remarking how man, in gradual fashion, awakens vague intimations of immortality by cultivating his "love for wisdom." Experiences with life reverberate insight that continually opposes its former assumptions. By being faithful to the congruent impulses for the truth, the beautiful and the good, man further arouses the purposeful quest for moral and intellectual wholeness. He can involve himself in a continual renewal of insight, surpassing the former propositions of logos and unveiling the symbolic boundaries of yesterday's comprehension of life for breaking new ground. It is not a specialized breakthrough

in science or art that commends such a scrutinizing task, but the hope, stimulated by the mythic descriptions of the forces within, of surpassing these acquired boundaries and directly experiencing the cosmic source of selfhood—the unalloyed Good in its eternality and unchangeableness, the ultimate reality.

Endowed with this mythic remembrance and the intentional effort to recover his origin, man can endure his corporeal finiteness, knowing full well its temporary dimension. Man the microcosm is reminded of his soul's nature through the myth of the *Timaeus* which has cast the soul's meaning upon the construction of the cosmos. Similarly, in the *Republic*, he understands the extension of his soul upon culture. And behind both stories is the myth of the human soul itself portrayed in the *Phaedrus*. Man can appreciate the struggle of nature in achieving its seasonal accomplishments because he knows first hand the internal struggle to discover and express in his personal and cultural existence the good, orderly, humane life.

Plato has remythologized the mythic inheritance. The search for the meaning of human existence can no longer rely entirely upon the poets' viewpoint. Amidst the gods of Homer and Hesiod, man remained too mortal. Destiny and death in the mythic form of Moira has now been transformed into its absolute opposite—eternal life. Man's self-awareness takes on a new quality of ultimacy, for his conscious experience of transcendence, prepared for by striving after wisdom, and intimated by the mythic symbols, reaches out in full consciousness to eternality.

Similar to Aristotle, Plato suggests that the stars and planets surrounding men symbolize the divine order to

which they are called, for these heavenly bodies reveal the eternal, changeless essence of reality. Fidelity to one's nature, attuning one's personal existence to the macrocosmic order, is the hallmark of both philosophers. Continuity in the symbolism would suggest continuity in the experience of ultimacy. Yet for Aristotle the human consciousness, for all its grandeur, falls short in its attainment of divine happiness—something which for Plato is the normative and teleological conclusion of man's nature. Man's life is a process of succeeding myths in which he makes the transition from belief in the gods outside himself to the dawning understanding that they symbolize forces and movements within himself. To speak of the sacred, the divine, the ultimate dimension of reality, is, for Plato, to speak of the goal of life already at work in the hidden areas of man's soul, drawing him forward to the climax of transcendence in which he realizes himself as the embodiment of religious consciousness. Whatever the philosophical assimilation of specific mythic imageries may be, philosophy itself, though based upon the *logos* and its distinction from myth, continues to see reality with the eye of myth. It might sharpen and change this eye. But at the same time it remains dependent on the mythological process. As a result, we have to expect not only changes of myth by philosophy, but also of philosophy by myth.

The Myth in Decline

Both Plato and Aristotle mark the acme of an intellectual epoch that soon witnessed the dissolution of

Hellenic civilization with the result that "philosophy became more and more divorced from the active engagement of men in the ordering of society, more and more concentrated in groups ('schools')."[50]

Plato's hopes of a spiritually reformed, national Hellenic empire became lost in antiquity as the Alexandrian reign gave way to the emergence of the Roman empire. Now with the demise of Greek religious consciousness, "the substance of nature itself became divorced from its spiritual significance, and cosmology and physics tended toward naturalism and empiricism. In the same way that from the Orphian-Dionysian dimension of Greek religion there developed the Pythagorean-Platonic school of philosophy and mathematics, so from the body of Olympian religious concepts, emptied of their transcendent meaning, arose a physics and and a natural philosophy which sought to fill the vacuum and to provide a coherent explanation for a world no longer inhabited by the gods. The general movement was from symbolic interpretation of nature to naturalism, from contemplative metaphysics to rationalistic philosophy."[51]

This emphasis upon rational naturalism can be found in the Roman preference for their Stoic and Epicurean schools which, however, "contributed little to the natural sciences directly and which showed little concern for the metaphysical and theological significance of the sciences."[52] To these features of Western civilization must be added another important culturalizing factor which brings to bear upon philosophy and science its own intrinsic purposefulness, namely, the phenomena of Christendom. In line with the assumption that philosophy and

myth belong together, we have to expect once more that a modified mythology makes itself see different things and reject old ones. A feeling for religious ultimacy, a concern for individual destiny, and the understanding of the world as a cosmos are still preserved in the atmosphere that Christendom inherits. All these mythic factors, however, will soon be revised anew while keeping their value within a teleological framework—a Christianized teleology.

3

Religious Consciousness and the Worldview of the Middle Ages

The Contribution of Christendom

While a number of mythological elements continue to be formative for religious consciousness and the categories by which it approaches reality, the development of Christianity adds a more personalistic, as well as a new socio-religious, aspects to the notion and conception of teleology.

The emergence of Christianity during the height and fall of the Roman empire ushered into society entirely novel concepts of God and the origin of nature, as well as the purposeful destiny of man. Gradually, Latin Christendom, under the credentials of the Roman Catholic Church, established itself after the fourth century as the single most dominating force in the structuring of medieval culture.[1]

Over the centuries the Church designated itself as the corporate union of all believers in Christ, its founder. This *unum corpus Christi* was not merely a sacramental or spiritual congregation, but also a tangibly organic and earthly society, as suggested in the writings of St. Paul.[2]

Without delving into the history of the various oppositions to the Church's claim to influence society on its own monarchical terms (expressed in the various types of caesaropapism from the Eastern emperors and patriarchs to the feudal aristocracies in the Western empire), our point is that Christendom as embodied institutionally during these centuries developed its own teleological categories that symbolized the *ecclesia* as the mediating vehicle for determining the religious consciousness of the West and the world.

Since the Church is not a random association, but is conceived as an organic, living entity, it must needs function with direction in order to bring about its purpose for existing. Authoritative guidance and recognition is indispensable for the proper operation of the various members of this body, as it would be in a multi-faceted community. Using the analogy of a human body, mentioned in various texts of the New Testament, the members and their functions (or offices) were unified by the controlling principle of the head. The form of rulership over these members was, like that of the empire, monarchic. One sole leadership could best guarantee the well-being of the body and protect it from disruption and schism. Under the ruling power of the head, the *unum corpus* could achieve its *finis*, namely, the salvation or spiritual redemption of the members.

The thrust of the medieval Church, considered especially from the point of view of its leaders, the popes, "regarded it as their duty and office to rule, for they claimed that the *cura et sollicitudo* for the whole of Christendom was in their hands."[3] In their minds, Christendom's

privileges coincided with the cultural geography of the known world—at least in principle if not in fact. Consequently, a practical implication of this universal ruling power consisted in the subordination of the temporal-material realm of life to the sacerdotal-spiritual. Transposed to society, this medieval principle meant that the temporal ruler should subordinate his office to the rulings or direction of those who represent the divine sphere, namely, the *sacerdotes*. With the head over the members, the soul over the body, and the spiritual over the material, the formation of medieval culture preserved a hierarchical order between heaven and earth within a teleological framework.[4]

Intertwined with this papal-hierocratic outlook was the accompanying reenforcement of an intellectual trend. During the first few centuries, Christian thinkers used the Western philosophical heritage not as a discipline in its own right, but as an apologetic tool to defend and augment the credibility of Christendom.

After the Patristic period, as the development of feudal society with its lords, vassals and serfs began to associate its progress with the ecclesiastical order of the Church, the social and intellectual interests within the Church fostered new waves of investigation into the world at large. The scientific-philosophical disciplines had not only their own subject matter and methodologies, but could be pressed even further into service to transform the revealed truths of the biblical heritage into a unified and coherent complex of teachings, broadly called theology.[5]

Interestingly, while the legacy of Roman law profoundly influenced Christendom's self-understanding as a

social reality, it was more the intellectual legacy of Hellenism that the medieval thinkers appropriated to construct their grand systems of philosophical and theological enterprise.[6] All in all, the mythical heritage of the Greco-Roman worldview was reinterpreted in light of the Judao-Christian event, forging a new myth—the Christianized cosmos.

The Cautious Assimilation of Greek Thought

The Greek heritage now underwent a careful scrutiny. Since the biblical viewpoint was at odds with these "pagan" resources, three major tenets demanded a cautious examination:

1. The deification of nature. Greek thought, for the most part, identified divinity with nature, which as a living organism, produced all beings by generative processes. The Genesis account of creation, on the other hand, revealed that the biblical God does not coincide with nature, but transcends the entire universe.[7]

2. The world as a self-sufficient cosmos. The world for the Greeks was a complex ordering of various forces moving through seasons and phases. These eternal transitions were guided teleologically with wisdom, mythically portrayed as the god Zeus, and later philosophically discerned as the one, supreme and divine unmoved mover of the cosmos. In contrast, the biblical God was a creator of a finite world of creatures. In his sovereign will this God initiated the world out of nothing, set the entire, finite world in its place and sustains it on its course through history. Consequently, there is an absolute dependence of

nature upon the divine creator who is the ultimate cause of its contingent existence.

3. Platonic Optimism. For Plato, man is capable of entering through the path of philosophy into a self-transformative gnosis that leads to eternal fulfillment. Although every major Christian thinker utilized the various writings of Plato, as well as Aristotle, they were very careful to limit the optimism of man's nature and his natural reason. The Platonic contribution here was the most dangerous teaching because it left no room for the incarnation and salvation wrought by the founder of Christianity.

In the Christian viewpoint, man's reason could interpret the world. That is, reason could delve into the world's structures and processes with scientific precision. But man could not truly find the lasting happiness for which he hankered, on his own. The reason for his failure is that his nature is defective; a kind of ontological impotency keeps him from ever realizing total fulfillment by his own powers.[8] As a creature, he is finite though immortal—capable upon occasion of reasonable actions, but requiring the agency of the Church to achieve over and above his natural inclinations the hope of blessed happiness, living in the company of the biblical God.

What allowed man to overcome this disparity was the differentiation of consciousness called faith *(fides)*. Faith was a synthesis of consent with intellectual speculation: "to believe is to reflect with consent."[9] Unable to initiate this conviction on his own, man requires the assistance of a divine impulse in order to desire the reality offered as salvation. Salvation is the goal or *finis* of life, and man makes the meaning of the content of salvation,

assented to by this act of faith, his ultimate purpose.

The general contours of the teleological cosmos were acceptable to the Christian thinkers provided certain elements dangerous to their credentials were expunged. Since it would take us too far afield to examine every attempt during the "Scholastic" period to synthesize the ancient tradition with the Christian message, we shall now turn to the thirteenth century. This proved to be culturally the most fertile ground for achieving the most complete synthesis of Western thought within a Christian framework.

The Teleological Portrait of the Medieval Cosmos

The enormous medieval interest in learning accompanied by the growth in universities was further stimulated by the rediscovery in the West of the Aristotelian *corpus*, along with Byzantine, Jewish and Arabian writings. Hitherto, it had been mainly the neo-platonic elements that influenced the Church theologians, especially St. Augustine. From the tenth to the fourteenth centuries Europe opened its doors to the importation and revival of ancient learning from Eastern quarters.

The Church had a serious interest in this new arrival, for it offered a complete worldview that could be argued with realistic premises. Among the Christian thinkers who attempted to harmonize these new imports with the more traditional acceptance of the Augustinian complex was St. Thomas Aquinas. As far as the Roman Church is concerned, his synthesis of these various strands of learning best summarized their importance for medieval man's

ultimate destiny. His life (1225-1274) spanned those years when the ancient revival had its most controversial impact upon Christendom. And so it is in his works that one can find how the biblical version of the world was reconciled with the "pagan" cosmos.

The Thomistic Synthesis: Christian Teleology

Aquinas accepted the organic naturalism of Aristotle and the metaphysical structuring of the cosmos. But he reinterpreted both within the context of a Christian supernaturalism.

Aquinas retained every basic insight that Aristotle attributed to nature—everything except the fact that the eternity of matter gave way to the creation acts of a creator God revealed in the Genesis account. The finality of natural forms was hierarchically affirmed, and its overall climax for origin and destiny was the supreme unmoved mover or first cause, now transformed into the biblical designations.

Nature's regularity has been instituted by God, and the interdependence among beings can lead man's logos, as it did for Aristotle, to the causal knowledge of the existence of God. Natural beings, through the regularity of their growth and activities, indicated that performance is for purposes. Following the lead of Aristotle, Aquinas discerned an ordered world throughout the cosmos.[10] The finality of the species reflected a spark of eternity, for when individuals perish, at least the species continues. And so the cosmic order is preserved. Among the species there is a relative finality. Each is subordinated to another

with a descending progression from the fixed heavenly bodies in their recurring patterns, to the earthly elements.

For Aquinas, every being that acts in any way does so for a purpose, an end, a *finis.*[11] Even among the orders of nature that are nonrational (as manifested in the instinctive behavior of animals and the specific processes of plant and mineral realms), purpose is in evidence. Throughout the cosmos each specific essence of every individual releases an immanent principle of activity, which lies at the root of corporeal and intellectual dynamism, and explains not only its transition from the state of potentiality but likewise its orientation in a determined direction. For the mode of activity will be consonant with the specific nature. The constancy in a structure or activity can never receive an adequate explanation unless one accepts the view that it is determined in its particular direction. This means that the ultimate explanation must be sought in that end or *finis* to which it is directed, for the motivation and regulation of the process or ensemble is determined and specified by it.

For Aquinas a hierarchy of ends swept across the horizon of existence. The composition of man within this grand spectrum is unique. Man is most akin to the divine person whom he calls "father." Made into the image and likeness of God according to the biblical symbol, man, as an intellectual being, possesses a freely-proposed, self-informed intention, and can promote self-direction towards it. Although his total nature as an intelligent, living, corporeal being limits the scope of his freedom by the very determination of his psychosomatic nature, nevertheless, he is able to embrace beyond his own natural

form or essence the forms of other realities. His consciousness permits man to universalize himself. Becoming freer through the act of knowledge, extending himself beyond the limits of his corporeal matter, man can enjoy the significance of that act as it fulfills him. Thus he discovers the teleological nature of his being in the very acts which attempt to realize its achievement.

The entire ground that allows such liberty is the immateriality of his intellectual operations. Mind is spirit for Aquinas. Free from corporeal matter, man can compose his plans and purposes and reflect directly over his composition, revising where need be before, during and after its execution. No other creature enjoys such liberty of awareness. Only man can judge his judgments; only he can investigate the nature of realities and impose himself anew upon his environment.[12] The rest of nature has no such reflective options. Man represents a limit for them, which they approach in varying actuality. The greater the actuality of their forms, that is, the less infused with materiality they are, the less their natures are subject to the restrictions of determined matter. Natural beings, either by way of sensible apprehension or by way of purely corporeal form, an instinctive impulse, fulfill the chores of their predetermined destinies, preempted from the discriminating possibilities of the human species.[13]

In surveying the cosmos, Aquinas witnessed a graduated series of ends, so arranged that the attainment of one would lead of its nature to the attainment of another. He discerns in each being an immanent finality for the good of being itself—a relative transcendent finality in the levels of creatures in the hierarchy of being, and an

absolute transcendent finality by which everything in the cosmos is ordained to God.[14]

The order of the universe is the certain indication of its finality, for it is its very establishment. The order of the universe, in other words, is the constitution of its teleological determination. Aquinas perceives the perfection of the universe in this order: "the goodness and perfection of the universe consist in the order of parts to one another."[15]

The entire order of the universe is the realization of a divine plan in a divine mind. It is a teleological masterpiece of the divine architect, who in contemplating his own essence sees the infinite capabilities of imitation, and freely decrees the existence of creatures to render a distant representation of the divine being's perfections.

In his most famous work, the *Summa Theologiae*, a philosophical-theological writing in which he incorporates the medieval worldview within the framework of Christian salvation, Aquinas mentions: "the principle intention of this sacred doctrine is to impart the knowledge of God, not according to what he is in himself, but also according as he is the cause of things and their end, especially of rational creatures, intending the exposition of this doctrine, we will treat first of God, second of the movement of the rational creature towards God, and third of Christ, who, according as he is man, is for us the way of moving towards God."[16]

Inspired by faith, man views the cosmos as a contingent sign of divine order drawing him towards his immortal destiny.

Summary

The thirteenth century's synthesis of Greek science and Christian theology established a distinctive teleological approach to God, nature and man that, for the most part, endured into the seventeenth century. Under the guidance of Aquinas, the unification of Aristotelean cosmology and Christian theology could buttress the already teleological notion of institutional Christendom as an organic body of believers having a transnatural or supernatural purpose. The world was intelligible and orderly. Man's mind could detect traces of consistent interdependencies among the cosmos that rationally demanded an explanation. The purposeful cosmos required a purposeful and ultimate cause. Thus, with the addition of faith in the biblical revelation, the Greek unmoved mover became the bible's personal God. Reflective faith now posited that the metaphysical first cause could be identified with the purposeful creator of biblical theology.

The unique position of man, an image of the divine exemplar, was considered to be at the center of the universe. Moreover, as each species realizes its potentialities, that is, fulfills its nature, all the various levels and dimensions of teleological formation illuminated the hierarchical impression of an orderly cosmos. Man was upon the earth which, in the Ptolemaic scheme, situated the earth at the center of the cosmos. The movements of the heavenly bodies in concentric circles fixed permanently in their course, added further to the interpretation of reality as a graded hierarchy, a causal chain that led from dense matter to the most spiritual substance, entirely contingent

upon its divine architect.

God, the first and final cause, continues to work through his created cosmos. The natural laws of the objective cosmos reflect his eternal truths and follow out their proscribed patterns of activity. Nature's intelligibility unfolds in the discerned purposes of its existence, apprehensible by man. Man himself achieves his end by aligning his dynamism with the divine purposes as interpreted by the agency of God's principal instrument, the Church. Nature was for man's purposes, but man was to know, love and serve God and his representatives on earth in order to be eventually happy with Him in eternal beatitude.

The medieval picture manifested a total plan, rationally appealing and realistically supportive of the concrete conditions of feudal society and the hopes of transcendence. Christian faith in this ultimate plan and the reality symbolized by it became the medieval equivalent of religious consciousness.

The Turbulent Progress into the New World

The scientific ideal of the Aristotelean-Thomistic synthesis and the ideal of a unified Christendom brought European civilization to a cultural height that never before or after so centered itself around the Church. And yet the age of cosmic teleology, as one might address the last 2,000 years, did not outlive the splendor of its medieval version.

As medieval society grew in population, the cultural forces belonging to the ordered civilization instigated new interests that could not be satisfied within the

hierarchically structured classes and attitudes that had prevailed. To speak of the Renaissance is to characterize a movement or spirit that perhaps concludes the complexities of medieval society more than being a rupture from its predecessor. Every aspect of culture seemed to be subject to changes that could not have been anticipated by the middle ages.

More and more men took a new interest in themselves and their environment, and thus attempted to reorder the world in less hierarchical and organic fashions. The excitement of the new trade routes, the discoveries of new lands, the proliferation of the mechanical and inventive arts brought about enormous pressure for new economic bases and expanded men's outlook beyond feudalism and the guilds.

A new consciousness of living life upon this earth with all its marvelous potentials opened up for enterprising minds and energies. Every medieval institution underwent readjustment. The national prosperity of the middle class, the emerging centralized monarchies, and the new class of bankers and merchants completely outdistanced the traditional regulations and older forms of social and business intercourse. Rather than a single homogeneous humanistic spirit, one found diverging streams of humanism which emphasized nationalistic differences and interests. Mutual rivalry could be detected on every front of human endeavor, not the least of which was the effort at education and scientific knowledge. For it was to scientific endeavor, more than any other single factor, that the new world, the modern world, was to owe its inspiration and destiny.

4

Early Modern Cosmology

Transition from Organismic Cosmos to the Mechanized Worldview

The cosmological movement of the early modern period of the sixteenth and seventeenth centuries may be described as a sustained polemic against medieval scientific statements and the authoritarianism of Aristotelean thought among the universities. Collingwood remarks that the "doctrine specially selected for attack was teleology, the theory of final causes."[1]

The innovative natural philosophy of the Renaissance refrained from viewing motion as a manifestation of a teleological cause in preference to the more Pythagorean approach of change as a function of structure. An emphasis on the immanence in nature of the formal and efficient causes still retained the organic outlook of the internal energies of the Greek period, but the double-tiered world of the eternal, heavenly spheres and the earth's mutable matter was beginning to be suspect.

When the heliocentric hypothesis of Copernicus (1473-1543) received the necessary data to support it,

the belief in the radical difference between heavenly matter and earthly matter, along with the hierarchical structured cosmos, with the earth as its center, suffered a fatal blow. Giordano Bruno (1548-1600) introduced a pantheistic cosmology as an interpretation of the Copernican Revolution—a variation, as it turns out, of the ancient theory of Democritus, except that the plastic matter-filled-infinite-space became composed of matter, form, spirit and God, all in one.[2]

The new astronomy implied "a denial of any qualitative difference between terrestrial and celestial substance."[3] Tycho Brache's (1546-1601) research and observations of new stars and comets led him to conclude that the heavenly bodies were not incorruptible. He wrote Kepler (1571-1630) who, taking over from there, introduced elliptical motion for the planets which further weakened awe for the so-called perfect, circular motion of the heavenly bodies.[4] Kepler and Brache both maintained that the heavenly bodies move quite freely, and Kepler suggested that the scholastic concept of an internal principle of motion in things should be substituted by a "vis," a mechanical power or energy, itself quantitative and producing quantitative changes only.[5] As the astronomers developed more precision in their analysis of their data, they began to think that the purpose of astronomy was not to just save the appearances, as Copernicus professed, but to reveal the truths of nature.[6]

The mathematical realism in cosmology could not be better expressed than by Galileo (1564-1642). "Philosophy is written," he said, "in that vast book which stands ever open before our eyes, I mean the universe; but it

cannot be read until we have learnt the language and become familiar with the characters in which it is written. It is written in mathematical language and the letters are triangles, circles and other geometrical figures, without which means it is humanly impossible to comprehend a single word."[7] The echo of Pythagoras returns, but in the shadow of Francis Bacon's (1561-1626) inductive procedures for describing the phenomena.

Galileo was not interested in using the teleological terminology of the scholastics, for the question of purpose was not as important as "how" bodies moved.[8] The Aristotelean approach in more qualitative and substantive terms yielded to a more quantitative interpretation that expressed the process of motion itself in mathematical terms. Space and motion must now be seen as fields of geometry. The real world became for Galileo, as Burtt remarks, "a world of mathematically measurable motions in space and time."[9]

The important realm of life lies in the exact measurability of its contours. For the Greek and Scholastic worldview, man as an integral part of nature is no longer an essentially prominent figure. His citizenry in the world is as a spectator. The greatness of man consists in his knowling the primary qualities—number, figure, position, magnitude and motion—which, of course, cannot be separated from material bodies. In knowing these qualities, man is in contact with the true realm of scientific knowledge, a knowledge that is absolute, objective and immutable. The ultimate characteristics of nature are essentially mathematical; the other qualities of sensation, although usually more noticeable in man's experience of the everyday

world, are merely the subjective effects on the senses of the primary qualities, which alone are objectively real.

For Galileo, mathematical constructs do not require final causes. With the universe identifiable with quantitative definitions, Galileo preserves teleology in protology. Nature is not merely a "given"; it is given to man by the mediation of man.

The Revision of God's Role for the New Universe

In our modern age of nuclear technology, religious questions raised by the advantages of mathematical approaches to nature may seem superfluous to the scientist. In the Renaissance environment of these astronomers, however, this type of question was profoundly serious. For these men, religious consciousness was woven with their careers in academic duties.[10] Galileo is not trying to eliminate God from his science, nor demonstrate the independence of the changing world from divine causality. In the hierarchical cosmology of the scholastics, God is the obvious final cause of the cosmos. But in the world of material and efficient causes mathematically interpreted, there is no necessary recourse to finality. Nature in its changing material atoms can be sufficiently explained in mathematical relations. How events take place in nature is not a problem without the explanation of teleology.

Galileo belies the friction between his Christian belief in the Divine Creator and the unnecessary role of God as final cause by transforming God into the Efficient Cause of the atoms' motion. The biblical God is not so

much the supreme good or end of creation as he is the one to account for the first presence of the atoms. This could be reconciled with the Genesis account of the world's inception from nothing. Collingwood states: "Both God and man are regarded by Galileo as transcending nature; and rightly, because if nature consists of mere quantity its apparent qualitative aspects must be conferred upon it from outside, namely by the human mind as transcending it; while if it is conceived no longer as a living organism but as inert matter, it cannot be regarded as self-creative but must have a cause other than itself."[11] Later speculation by scientists and philosophers refined this insight, and gradually God was eliminated altogether, as the atoms were viewed self-sufficient to explain their activities.

Reenforcement from Descartes and Hobbes

For Descartes (1596-1650) too, mathematics was the key to unlock the secrets of the province of nature. With his criterion for the discernment of truth in the clear and distinct idea, he proposed to construct a cosmology, relying upon the guidance of mathematical principles, that would achieve a complete explanation of the material universe.

Instead of substantial form, corporeal substance is totally identified with extension, since the essence of bodies consists in threefold dimension. In the scientific study of the objective, physical world, only principles that accord with extension and its quantitative modes are legitimate. All physical phenomena, including the movement

of bodies (local motion), may be explained in terms of the mathematical relations between matter and motion. Efficient causality explains all. Natural purpose has no business in the physicist's world. The homogeneity of matter nullifies the need for it, since there is no intrinsic principle of movement in bodies.

Matter has been invested by God from the beginning with a constant amount of motion; for Descartes there is no entropy. Motion, then, is local—the only type amenable to the continuum of matter. Consequently, "all that manner of causality which is usually drawn from the end has then no use in physical and natural things."[12]

Yet there is external finality. The providence of God, and not chance, has disposed the coordination of bodies. "Descartes grants to the mathematical and general physical laws a consequent kind of necessity. Once God wills them to be, he abides by his own decision and is not going to change his decree in favor of another set of truths. This follows from the immutability of God. Given a free act of the divine will, God remains unchangeably and uniformly faithful to his actual choice of laws and truths. In this way, both the infinity of the divine power and the stability of human scientific knowledge are assured."[13] Any attempt to pursue further into the arrangement is to be presumptuous in disclosing the hidden plans of divine wisdom.

Thomas Hobbes (1588-1679) did not agree with his French colleague. Although Descartes conceived of his famous writings as raising man to his highest degree of perfection, Hobbes would not concur in that ambition until even man's mental activities could be properly

understood as physical motions in his material body.

In his philosophical writings, he uses scholastic terms with his own nuances added: " . . . if I first know that a thing is rational, I know from thence that the same is man; but this is no other than an efficient cause. A final cause has no place but in such things as have sense and will; and this also I shall prove hereafter to be an efficient cause."[14] His view on causality is consistent; everything is reduced to mechanical determinism.

Friend of Descartes though he be, he will not hold for the Frenchman's dualism. The activity of the *res cogitans* is a variation of the *res extensae*. Thinking and willing are movement, and since geometry is the science of simple motion, the geometrical mechanics of absolute necessity will serve quite nicely to explain human nature. The world is self-sufficient in its mechanics. God is either part of nature, being corporeal, or else a bodiless being, and thus outside our investigation. At best we can prove our desire and belief in an eternal power called God, but not in the existence of divinity. Man produces only emotive names at best in applying them to this God, the unknown power of the universe. For Hobbes, the origin of religious consciousness is the individual's fear of an "unknown, threatening force in the universe."[15]

Summary

More and more the use of experimental methods and the successful employment of mathematics to mechanics increased the tempo of the scientific revolution that radically altered man's conception of nature by eclipsing

the older Aristoteleon view of cosmology. Social and economic conditions prompted an increased interest in the technical processes of various trades. Scientists and craftsmen joined in a mutual vision that saw the unlimited utility of applying the new philosophy, consolidated presently by Newton, to concrete problems of engineering and manufacturing. A new era of progress was underway with the scientific rationality of classical mechanics insuring its irrevocable triumph for mankind.

A cultural shift was emerging in the scientists' conception of divinity. The mechanical interpretation of nature, the rise of the experimental method, the more direct, empirical contact with reality that opened unimaginable possibilities for using the powers of nature in practical ways to benefit society stirred the feelings for a new kind of naturalism that looked upon the medieval conception of a static cosmos as totally irrelevant. The God of the cosmos is to be reinterpreted in light of the scientific rationalism that began to dominate Western culture.

The religious conviction of the fundamental relationship between the God of creation and the status of the universe had to manifest changes since the breakdown of the medieval conception of the scale of being and its teleological implications. The correlation between divinity and nature during the seventeenth century presented divergent conceptions that affected the Christian drama of man's destiny, each in a different way.

The Cosmological Trends and their Teleological Implications

In the seventeenth century, one finds four general theories of nature competing for attention:

1. The Aristotelean-Thomistic school. The late medieval, or more traditional approach, retained the full Aristotelean *corpus* with various commentaries by the scholastics. Its empirical methodology sought the spontaneous characteristic behavior in natural things, arising from their form and directed to an end consonant with the dynamics of their nature. The form, or immanent dynamic source, for the nature's operation included the real presence of a coordinated principle—matter—which was the basic potential of the nature. It was a speculative approach whose end was the discernment of the intelligible order of the cosmos. Regularity and causal inferences were guidelines for apprehending the stability of nature's processes. This approach was still endorsed, mostly by naturalists and medical doctors. William Harvey's investigation of anatomy and his demonstration of the circulation of blood are a perfect example of this teleological methodology.[16]

2. The school of *filosofo geometra*. Emphasizing the laws of the physical world as a realm of mathematical relations, this school substituted a mathematization of space and time for the Greek notion of cosmos. The approach in general was not new. Ancient and medieval astronomers used its procedures. But the emphasis on mathematical realism makes the world intelligible only when it is measurable. The material world could thus be investigated successfully without the help of final causes

because nature's movements were reduceable to measurable quantity. By doing so, the Greek intuition, which had been retained as an element of the Christian worldview, gained new momentum. As such it came to polarize the overall outlook of the age (cf. third school). Final causes, goals, intentions and the like are qualitative distinctions which have no place in the world of mathematical facts. Galileo, for example, would consistently relegate these internal modifications of the mind to the same status as merely phenomenal characteristics, like color, sound and other subjective qualities. Already the groundwork for the dualism between matter and mind, later utilized by Descartes and Locke, can be found in Galileo's distinction between the quantitative and mechanical character of nature and the secondary, non-quantitative region of man's mind and its dispositions.[17]

Yet purpose is present, if not in the immanent teleological manner of the Aristoteleans, then for sure in the consciousness of their science. For the real "purpose" of mathematical hypotheses is not to save the superficial appearances of nature at the sensible level but to unveil and resolve motion and matter into its fundamentally mathematical basis. The formal physical causes of Aristotle are replaced, for Kepler and Galileo, by a mathematical univocity, for the real world is dynamic motions in mathematical continuity. Emphasis now veers from God as the final and supreme good of the cosmos, to God as first cause of mathematially-charted efficient causes making up natural phenomena.

3. The school of corpuscular philosophy. The third school was more empirical and experimental in its methods

than the mathematical approach. It saw the world not in the homogenetic plenum of cartesian matter, but filled with corpuscular or atomic units of matter. The ancient atomic theories associated with Democritus and the Epicureans were resuscitated in a new context.

All the inner operations of nature and all the fabric of the universe could be resolved into the behavior of minute particles of matter and the variet of nature could be mechanically explained in such terms as size, configuration, motion and position. Before, the existence and motion of atoms were merely the fortuitous collision of their falling through the empty void; now the mechanization of these atomic particles reveals a rational coherence that could explain the uniform changes of behavior of bodies when subject to external influences.

Instead of searching for the final causes, which do not relate much about nature, one should examine the efficient causes, the internal mechanism, and the shape and composition of matter, along with the elastic forces involved in its motion. Here was the atomic world of men like Stensen (1638-1686), Roverval (1602-1675), Hooke (1635-1703), especially Boyle (1627-1691) and later Dalton (1766-1844). And among the more popular spokesmen could be numbered Hobbes and Francis Bacon.

At this point of our survey, i.e., before discussing the fourth theory, it is important to cite two most significant men whose writings were highly impressive in shaping the entire movement of science and this century's concept of divinity.

Francis Bacon and the New Experimental View of Life

Bacon, like Descartes, dispensed with the ancient heritage for enabling man to contend with nature. Ancient theories were dead and fruitless, especially the pursuit of final causes in nature, for these are "like virgins consecrated to God, producing no offspring."[18]

With his *New Learning*, Bacon thinks that he is introducing a new methodology for investigating the latent treasures of nature, which are hidden within the mechanical domains of its elements.[19] Bacon minimizes his dependence on Aristotle, but admits that what he has to say about methodological procedures in investigating nature is already present in the *Organon* of Aristotle. The Greek scientist-philosopher had pointed out that true morphology, for example, requires the examination of material and formal causes in terms of makeup and arrangement leading up to a natural event. In understanding the kind of materials, conditions and interactions of activity, the investigator is better able to grasp the outcome. The mind sweeps back and forth across the entire process in its exposure to the task, and repeats this scrutiny until the significance of the causal relations are discerned.[20] Bacon, however, does not maintain, as Aristotle does in his study of nature, that one can infer or demonstrate divinity's existence. According to Bacon, only Christian faith in the revealed word of God can assure man that there is a creator of the material world, who is all-powerful in designing the universe, and that he is wise and benevolent in his governing of his creation.[21]

Credit must be given to Bacon and the influence of his writings because to him more than to anyone else, and to his concern for setting up tools for what he classified as objective knowledge, the impersonal character of the "scientific method" owes its construction. In obtaining knowledge he admits that Aristotle's division of the four causes is proper, but that formal and final causes only retard the growth of real advances in understanding nature, for these causes distract the scientists from investigating the antecedent causes wherein advancement lies.[22] Knowledge gained by the new methods frees one from the responsibility to integrate these findings into a moral and metaphysical, even religious, context, the way the medieval approach preferred to structure knowledge. Professional knowledge is for power to dominate nature. Baumer remarks that Bacon's "favorite word was power, and he used it to denote two ideas. First of all, there was God's power which natural philosophy revealed in the same way that the study of Scripture revealed God's will. There was also, however, man's power and this was the denotation that he used more commonly. Over and over again, in the *Novum Organum* and elsewhere, he referred to 'human utility and power,' 'the power and dominion of the human race over the universe,' and similar ideas . . . . By means of his power man could establish a veritable utopia on earth. . . . a utilitarian 'kingdom' or 'empire of man over things' in which the emphasis was on the relief of man's worldly estate."[23]

What gave added impetus to Bacon's scheme was that he saw the right and duty to dominate nature as a religious sanction. Bacon demythologized nature by

undeifying it, which, because of its correlate (i.e., the God-concept), could not be done without mythologizing it in a different way. As for Bacon, this turn remained biblical in outlook.

The biblical passages in the Genesis story sufficiently liberated man from nature as understood by the Greeks. Unlike the Greeks, Christian man could not only surpass nature but should conceive of this task as his restoration from the "Fall" he has suffered. Man should have no fear to investigate God's works. Understanding scientific knowledge from this religious perspective purifies the mind from its misconceptions about nature and restores man's biblical dominion over nature. Scientific research thus becomes, for Bacon, a duty in Christian charity.[24] Hooykaas points out historically that "as in the sixteenth and seventeenth centuries, religious sanction was indispensable in order to make a thing flourish, science and technology profited greatly from this change of outlook."[25] The *ancien regime* had had its day, now mankind could look forward to utopian triumphs over nature and build the future of the *Nova Atlantis.*

The Contribution of Robert Boyle and the British "Virtuosi"

One of England's first chartered scientific groups formed a Royal Society of London for the promotion of Natural Knowledge in 1662. While their common attraction among themselves was their keen interest in science and mathematics, nevertheless, some took it upon themselves to promote lectures that showed how Christianity

and the new science were reconcilable. Boyle was a leader in this responsibility.[26]

As one of Bacon's admirers, he readily dismisses Aristotle's doctrine of the four basic elements and tries to reinterpret scholastic vocabulary in mechanistic terms. Chemical experimentation showed him conclusively that matter could not be reduced to only four elements. Moreover, he views the vocabulary of "substantial forms," "essence" and the like as only coverings for our ignorance. Nature is not a collection of substances. It is a system of mechanical laws. The particles of matter with local motion, one particle striking against another, are the sole explanatory principles in the system. Because of matter, science may be corpuscular; on account of motion, it is mechanistic. Consequently, final causes are totally extraneous to nature's systematic investigations.

Interestingly, Boyle wrote a treatise called "A Disquisition About the Final Causes of Natural Things, wherein is Inquired Whether, and with what Cautions a Naturalist Should Admit Them? To which are Subjoined, by way of Appendix, some Uncommon Observation about Vitiated Sight."[27] In this work, he understands final cause in two senses: first, that by which man reasoned to God from the uses of things (he called this the physico-theological or metaphysical view of teleology), and secondly, when using final causes about natures, man must be extremely cautious. He agrees with Bacon that science should search diligently among the antecedent causes to explain nature. Yet the scientist should not forget that it is the biblical God who not only has created matter but is the ultimate cause for motion and its laws.[28] God's "general concourse"

a term repeated by Boyle to indicate the providential direction of the mechanical operations of nature, extends itself even to individuals "only so far provided for, as their welfare is consistent with the general laws settled by God in the universe, and to such of those ends as he proposed to himself in framing it, as are more considerable than the welfare of those particular creatures."[29]

Although Boyle does not want man to lose his dignified place in subscribing to the laws of matter and motion, nevertheless, he still considers man's body (as Descartes similarly does) to be an engine endowed with will.[30] The primary argument for God and providence is the exquisite structure and symmetry of the universe. In one passage, he remarks that events occur "as if there were diffused through the universe an intelligent being, watchful over the public good of it, and careful to administer all things wisely for the good of the particular parts of it, but so far forth as is consistent with the good of the whole, and the preservation of the primitive and catholic laws established by the supreme cause."[31] His references to God based upon nature must be viewed in mechanical terms and not in the animistic tradition from the aristotelean-medieval worldview. Thus, Boyle is convinced, from his chemical studies of matter and his Baconian interest in the practical control of nature, that no better symbol than the great mechanical clock at Strasbourg could be cited to analogize nature. Nature, he tells us, is like "a rare clock, such as may be that at Strasbourg, where all things are skillfully contrived, that the engine being once set a moving, all things proceed, according to the artificer's design, and the motions of the little statues, that at such

hours perform these or those things, do not require, like those of puppets, the peculiar interposing of the artificer, or any intelligent agent employed by him, but perform their functions upon particular occasions, by virtue of the general and primitive contrivance of the whole engine."[32]

In his description Boyle was also mocking with his "puppets" the still lingering animistic worldview. In addition to the clock symbol, he employed another one, "the atomic alphabet," by which the fundamental properties and their permutations could be best explained. F. L. Baumer mentions that "these two metaphors of the clock and the atomic alphabet, particularly the clock, were quite common in intellectual circles by the late seventeenth century. They implied a radically new conception of nature, a "new philosophy" which Boyle sometimes called the mechanical, sometimes the corpuscular philosophy."[33] Together, the mathematical and mechanical principles are the "alphabet, in which God wrote the world."[34]

Boyle's Voluntarist Conception of God

In keeping a religious or metaphysical relationship with the Christian God, Boyle nevertheless was adamently opposed to using terminology that might give the hint of deifying nature. In his writings, he constantly associates organic and vitalist images of nature with egregious errors and proposes new images of nature in terms of legal and mechanical metaphors. God, the creator, is the single, transcendent source of order and design in creation. It is important to note that when Boyle speaks of divine laws

governing nature, he is resisting "necessary relations in creation, including those integral to organic and spiritual views of natural processes."[35] The character of law is something imposed rather than immanent. He remarks, "sometimes, when it is said, that nature does this or that; it is less proper to say, that it is done by nature, than, that it is done according to nature; so that nature is not to be looked on, as a distinct or separate agent, but as a rule, or rather a system of rules, according to which those agents, and the bodies they work on, are, by the great author of things, determined to act and suffer."[36] The "natural laws" are not immanent and intrinsic to physical beings, as the ancients and medievalists held, but legislated by God's will. Nature by itself is not inherently teleological. The discernable purposes are mechanically arranged, but always leave the freedom of divine ordination unimpaired. While God ordinarily confines the motions of matter to the regular laws originally established, "yet," as Burtt tells us, "he has by no means surrendered his right to change its operations in the interest of some new or special purpose."[37]

As a scientist, Boyle's empirical observations compiled irregularities in the general even run of nature; as a Christian believer in miracles, he upheld these mysterious, extraordinary interpositions by divine will. God, then, might at any time, "by withholding his concourse, or changing these laws of motion, that depend entirely upon his will . . . invalidate most, if not all, the axioms of natural philosophy."[38] This interdependence between science and religion shows itself in the conception that Boyle proposes as the ideal of the scientist. God's freedom allows

him to alter the laws of nature at will and so the task of the natural philosopher is to clarify this divine dialectic of will and law toward creation as a continuous vocation: one becomes "an inquiring minister of natural creation."[39]

Boyle wants to avoid making the laws or rules of nature too fixed and permanent, as Descartes had proposed, for then nature could appear as self-sufficient or independent of God. At the same time, he wants to underscore the rational, mechanical order of the universe. In order to retain the concept of lawful order in the realm of things, but without making nature autonomous in its processes, Boyle places the basis for purpose in nature in the free, autonomous and transcendent will of God. He states that "the laws of nature, as they were at first arbitrarily instituted by God, so, in reference to him, they are but arbitrary still."[40] God can thus intervene as he wills with the mechanics of his creation. Boyle thus protects the divine freedom over nature and the radical contingency of creation, but his voluntarist teleology puts a strain on man's ability to know the world with reasonable certitude. Inadvertently, Boyle has produced a strain of sceptism that will emerge more vividly in the philosophers of the Enlightenment, and take the great work of Kant to resolve the conflicting strands of mechanistic and teleological explanations, the freedom of God, and the necessitarian aspect of scientific laws.

4. The school of Classical Mechanics. With the demise of the aristotelean-medieval approach to the study of nature, the seventeenth century revolution in science saw two concurrent trends—a physico-mathematical viewpoint and a more atomic, experimental viewpoint--converge

upon one another. In either emphasis, the concrete world was no longer conceived as "a finite and hierarchically-ordered, therefore qualitatively and ontologically-differentiated, whole, but as an open, indefinite, and even infinite universe, united not by the identity of its fundamental contents and laws; a universe in which in contradistinction to the traditional conception with its separation and opposition of the two worlds of becoming and being, that is, of the heavens and the earth, all its components appear as placed on the same ontological level."[41]

Classical mechanics ushers in a new era in which scientific thought achieves its own rational consistency without the customary integration of humanistic values and purposes. These factors, like the ancient formal and final causes, are inconsequential because these concepts do not apply to the realm of mathematical ontology, nor are they very productive for a mechanical philosophy of life.

In 1687 the *Philosophia Naturalis Principia Mathematica* was published. Isaac Newton's (1642-1727) genius synthesized the prevailing trends in natural philosophy. Leaving aside the impotent Aristotelean view, Newton agreed with Bacon and Boyle that nature is written in corpuscular elements and not in the homogeneous, undifferentiated matter of Descartes. On the other hand, he agreed with Kepler, Galileo and Descartes that it is a mathematical syntax that binds the moving corpuscular texture of matter together. He joins experimental and observational data with mathematics, tracing the quantitative properties of nature and reducing them to mathematical formula. As Buchdahl explains it: "Nature is no longer

an ordered 'cosmos,' but has become a 'universe,' a system all of whose parts are related to one another. These 'parts' are pictured as quasi-geometrical points, their supreme paradigm eventually becoming the point-particle of Newtonian dynamics. Each individual 'point,' instead of being an 'instance' of a class or species, 'designed' to express some final purpose through the grand-pattern of harmoniously related forms, outside which there is still room for freedom and accident—each such Newtonian particle must be conceived of as being a nodal point in a mesh of interlocking lines, each of which is the picture of natural law. Nature is not individual natural forms but a horizontal mesh of laws."[42]

Newton's work on terrestrial mechanics showed more than ever before that the celestial bodies were not of essentially different composition than the structure of earthly matter. He respects, but is not interested in, ultimate or metaphysical explanations in his research. He is simply taking the empirical facts, forming a fitting theory in mathematical terms drawn from the study of the phenomena, deducing the mathematical consequences, and rechecking these conclusions with experimental verification. An hypothesis has no standing with Newton unless it is subjected to such experimental confirmation. In this regard, Huyghens (1629-1695) and Leibniz (1646-1746) later fault him for hedging on the cause for gravitational attraction. Newton answers his critics by postulating that God's will (similar to Boyle's divine voluntarism) is the ultimate cause, but he himself will not offer any hypothesis on the secondary causes.

In 1692 an Anglican chaplain, Richard Bentley,

wrote Newton to ask how his mechanical principles of natural philosophy could be used to defend Christianity against the attack of the atheists. Newton answered in four letters admitting how his laws failed to account for some aspects of the solar system's structure and thus it was necessary to involve God as a further explanatory principle.[43]

In questions considering the origin of the universe, Newton, true to his atomic, corpuscular philosophy, wrote in his *Optics*: "God in the beginning formed matter in solid, massy, hard, impenetrable, moveable particles, of such sizes and figures and with such other properties and in such proportion to space, as most conduced to the end for which he formed them."[44] God was not only necessary at the beginning, orienting and impelling planets into elliptical orbits about the sun, he was required, at times, to conserve them in their continuing motions. Here we see how Newton's religious suppositions frequently enter into his writings to save the appearances, as it were. He replied to the problem of why the planets do not gravitate toward the sun by stating that God intervened to maintain the stability of the system. He was thoroughly against chance as an explanation for particles becoming bodily units. Our complex world runs on material and efficient causes as well as the will of the Christian God who providentially keeps the entire system functioning in harmony. In a letter to Bentley (1692), Newton expresses a sentiment typical of his era: "When I wrote my treatise about our system, I had an eye on such principles as might work with considering men for the belief of a deity; and nothing can rejoice me more than to find it useful for that purpose."[45]

Conclusion

In the decades that followed, Newtonian thought became the scientific creed of the eighteenth century; its enormous momentum expanded into the twentieth century. Scientists continued to improve his calculations and showed that the solar system could maintain itself without intervention of the divine. By the time of Laplace (1749-1827), the use of God as a *deus ex machina* was no longer expedient. Newton's telic employment of the divine engineer to account for the irregularities in the system finally caught up with its presumption. With the advanced research in the mathematical and experimental investigations, Laplace's *Systeme du monde* (1796) could confidently assert that all the irregularities in the solar system may be explained as periodical and thus equalize one another.

Furthermore, Newton's voluntarist presupposition of the lawful structure of creation based upon and governed by its divine author included his belief that God made the solar system at a single moment in time. Its lawful motions revealed God's purpose for it. Laplace countered Newton's implied deism by proposing his nebular hypothesis: the universe is the result of a great gaseous nebula cooling and condensing into concentric rings from which the planets eventuated. "Its significance," J. H. Randall states, "lies in its viewing celestial phenomena as essentially processes of development in time rather than as eternal recurrences."[46] The analytic physics of this French tradition emphasized the quantitative correlations of phenomena. Their ideal was the elimination of

uncertainty in physical matters. The laws of mechanics would compliment this ideal by determining, through the indefinite perfectibility and universal applicability of scientific methods, the entire course of events for the future. With the refinements of the universal laws of mechanics, nature, understood more and more as a self-contained energy system, could be relieved of its providential supervision. The cosmic designer whose active concurrence with his laws of mechanical order had been such a profound supposition for Christian scientists was expunged gradually from scientific thought. God, for Newton, had become a *deus ex machina* and, as in the later phase of Greek tragedy, this concept once more destroyed the consciousness that had produced it. The *deus ex machina* here understood as expression and failure of religious consciousness. After the eighteenth century, God's relationship to nature and science became a debatable hypothesis.

The Philosophers of Classical Science and their Understanding of God, Nature and Teleology

With John Locke (1632-1704), a current of important interest begins in earnest with the human understanding of causality. The conditions for his questioning the role of sensation and the faculty of reasoning have already been prepared by the tensions between the corpuscularian theory with its reliance upon hypothesis and the apparent certainty of the idea of knowledge derived from the sensory level.

He appreciates the corpuscularian philosophy but

is sceptical of any causal explanations. Yet he is equally sure that nature acts in a causal manner from his observations of its constancy.[47] From his analysis of the simple ideas of cause and effect, Locke cannot discover any essential connection between them. In spite of this barrier to understanding causality, he insists that everyday sense experience reconfirms, as particular instances, the existence of causes and effects. He upholds, therefore, the presence of causality in nature but denies accessibility to its intellectual comprehension.[48]

In noting man's rational inability to resolve the dilemma, Locke offers a solution by attributing the causal connection to the "arbitrary determination of that all-wise agent who has made them to be, and to operate as they do, in a way wholly above our weak understandings to conceive."[49] Man can arrive at experimental knowledge, but not at universal knowledge; he can not really know the essence of things.[50] Philosophically speaking, Locke is the first major thinker who casts suspicion upon the confidence of the mind in its certitude about the mechanistic world, a suspicion that enlarges throughout the Enlightenment as, paradoxically, classical science entrenches its hold on all fields of knowledge.

Locke is quite modest in his philosophical empiricism. He expects man to live with a few certainties and many safe probabilities about the world. Definitive solutions to life's problems are too difficult to come by both in society and in science. After all, since human knowledge is the analysis of the actual contents of sense perception and the operation of reflective reason dependent upon sense data, one does not have any innate idea of God.

Locke, however, will not concede to Bacon and Hobbes that a philosophy that stresses sense experience can ascertain nothing about God. At the same time, he wants to avoid Descartes' use of God as the functional guarantor of our knowledge. He feels that he supplies an adequate demonstration of God's existence from an empirical origin, and thus further avoids any rationist use of God as a deductive principle. Man has no direct experience of the infinity of God nor a perfect idea of infinity. Thus the proportion between God's own nature and man's knowledge of it is very tenuous, to say the least. Man must be content with a very limited understanding of the divine realm.

Starting from the empirical experience of existing in the world, Locke attempts to show that since man cannot come from nothing, nor is he self-made, then his existence must ultimately depend, like everything else, upon an eternal first being or producer of both his existence and the known world. Only an a posteriori demonstration of God's existence is referred by Locke.[51] He does not go into the question of whether or not the idea of a causal principle of inference regarding man's finite ideas about himself can truly lead to a transcendental, (and thus non-empirical) source in legitimate reasoning. His compatriots will view his attempts differently. Berkeley attains God by reifying Locke's finite ideas, while Hume will question this conversion and refrain from making any final contribution to God's existence through demonstration.[52]

For George Berkeley (1685-1753), if one is engaged in studying the natural world, then one is not in "the

business of physics or mechanics to establish efficient causes, but only the rules of compulsions or attractions, and, in a word, the laws of motion."[53]

Sensitive to Locke's criticism of the corpuscularian theory, he wanted to protect the general certitude of ordinary experience while acknowledging the legitimacy of Newtonian science as a mechanical system of mental constructs. He also wished to protect the spirituality of God by not associating him too closely with the experiential province of the natural scientist.

To speak of causes, including final ones, belongs to the province of metaphysics or theology. Berkeley explains it thus: "Modern thinkers consider motion and rest in bodies as two states of existence in either of which every body, without pressure from external force, would naturally remain passive; whence one might gather that the cause of the existence of bodies is also the cause of their motion and rest. For no other cause of the successive existence of the body in different parts of space should be sought, it would seem, than that cause whence is derived the successive existence of the same body in different parts of time. But to treat of the good and great God, creator and preserver of all things, and to show how all things depend on supreme and true being, although it is the most excellent part of human knowldge, is, however, rather the province of first philosophy or metaphysics and theology, than of philosophy which today is almost entirely confined to experiments and mechanics."[54]

God's action, as an incorporeal agent, is the real cause of motion. The naturalist is concerned only with phenomena; he is unable to explain anything about causality.

Like Locke, he insists that true causality exists; but more confident than Locke, Berkeley maintains that man can penetrate behind the phenomena of nature, as it were, arriving at the metaphysical level where exists the "real and true causes" of phenomena.[55] He writes, " . . . when we enter the province of the *philosophia prima*, we discover another order of beings, mind and its acts, permanent being, not dependent on corporeal things, nor resulting, nor connected, nor contained; but containing, connecting, enlivening the whole frame, and imparting those motions, forms, qualities, and that order and symmetry, to all those transient phenomena which we term the Course of Nature."[56]

Berkeley replaces the necessity of efficient causality at the phenomenal level with customary lawlike operations of the universe, guaranteed by the free and changeable will of the author of nature. Like Descartes, he holds that the true notion of causality is ultimately unavailable at the level of physical science, but is traceable to God's will at the level of metaphysics. For how can natural processes reveal and sustain his activity in nature in a uniform manner? In his *The Principles of Human Knowledge* Berkeley states: "By a diligent observation of the phenomena within our view, we may discover the general laws of nature, and from them deduce the other phenomena; I do not say demonstrate, for all deductions of that kind depend on a supposition that the author of nature always operates uniformly, and in a constant observance of those rules we take for principles: which we cannot evidently know."[57]

Granted that God is the author of nature, natural

processes may not impinge upon the divine author's freedom. God may or may not reveal and sustain his activity in nature in a uniform manner. The God of Descartes, the supreme principle of efficient causality, is now replaced by a certain lawlike sequence of operations in nature. Inadvertently, Berkeley is providing the nominalistic metaphysics for Boyle and Newton's concept of science. Still, in attempting to keep God or metaphysical notions away from physical science, Berkeley cannot avoid reference to God in order to provide a genuine explanation of causality discernable by common sense. For Berkeley science is unintelligible without God.[58] Unfortunately, his division of physics and metaphysics still prolongs the scepticism of the mind to know reality with assurance. Scientific knowledge, the atoms and forces of mechanistic Newtonian thought, was for Berkeley, "convenient fictions, put forward in order to interconnect those phenomena so that we can manipulate and classify natural things."[59]

The Elimination of Teleology in Nature

Unlike his predecessors who contended with the pedestrian observation that causes take place in the objective world, David Hume (1711-1776) proposes a new tack for explaining this common experience among men. The idea of necessary connections, commonly presumed, is not really discernable from the external world, although it seems that way; instead the idea of causality is projected upon reality.

An ordinary day confronts one's observations with

myriad events continuously happening all around the observer. Consequently, "this idea of a necessary connection among events arises from a number of similar instances which occur of the constant conjunction of these events; . . . after a repetition of similar instances, the mind is carried by habit, upon the appearance of one event, to expect its usual attendant, and to believe that it will exist. This connection, therefore, which we feel in the mind, this customary transition of the imagination from one object to its usual attendant, is the sentiment or impression from which we form the idea of power or necessary connection."[60] In his famous illustration of motion being apparently transmitted through the impact of two billiard balls, the proper observation in each instance proclaims a constancy of conjunction among the objects. There are no grounds for asserting causal connection between the balls, although the idea of connection, he admits, arises in the mind nonetheless.

In his *Treatise of Human Understanding* Hume critizes the traditional scholastic axioms on causality—namely, every beginning must have a cause of its existence and every effect must equally have a cause of origin. Having already shown that ideas like events are distinct and separable, he points out that the idea of cause and the idea of effect are likewise unconnected in our mind. Anyone who takes the trouble notes that he can easily imagine one without the other. Therefore, "the separation . . . of the idea of a cause from that of a beginning of existence is plainly possible for the imagination, and consequently the actual separation of these objects is so far possible that it implies no contradiction nor absurdity . . . "[61]

With a similar line of reasoning, Hume can dissolve the causal concept for the fiction that it is, and thus would eliminate the support for teleological explanations as well as Berkeley's spiritualistic metaphysics. The analysis of causality shows it to be merely a habit of expectation. Our ideas are as broad as our experience, and since we have not observed a creator creating worlds, no amount of generalizing can rightly establish the divine creator. The argument from design (the divine clockmaker) remains attractive but our ideas, being finite, at best arrive at a finite designer.[62]

Yet in his psychological views on the matter of induction and causality, Hume exercises discriminating approval when it comes to Newtonian physics. In this region of experience man can arrive at general causes about nature, but not the ultimate causes in the Berkelean sense. While endorsing the Newtonian picture of the world, one can at best speak of statistical uniformities in nature, but it is impossible to speak of final causes.

Earlier, and thus independently of Hume, was Gottfried Leibniz (1646-1716). A contemporary of Newton and Locke, and influenced by the success of mathematical methods, he attempted to reduce all his thought to as few principles as possible. Without denying that the world's efficiency depended upon God, the world (the best one there is or could be) has been cast into a self-sufficient system that does not need God's fashionable intervention. Leibniz disagrees with Newton for employing God as a clockmaker continually adjusting his handiwork through history. The world's internal forces and causes are totally adequate to manifest God's maximally

best world; invoking God's extraordinary power to explain ordinary natural processes undermines belief in divine wisdom.[63]

Dr. Samuel Clarke, a British defender of Newtonianism, took exception to the implications of Leibniz's attempt to make the world independent of God's concourse. He wrote: "The notion of the world's being a great machine, going on without the interposition of God, as a clock continues to go without the assistance of a clockmaker, is the notion of materialism and fate, and tends (under pretence of making God a supermundane intelligence) to exclude providence and God's government in reality out of the world. And by the same reason that a philosopher can represent all things going on from the beginning of the creation without any government or interposition of providence; a sceptic will easily argue still farther backwards, and suppose that things have from eternity gone on as they now do without any true creation or original authors at all, but only what such arguers call all-wise and eternal nature."[64] Leibniz's attempt to make nature somewhat independent from divine intervention was simply too radical for the British "virtuosi."

Butterfield remarks that Leibniz saw "everything which took place in the body of man or animal . . . as mechanical as the things that happen inside a watch."[65] At the same time, the efficient causes or mechanical explanations of things have a complementary relationship with final causes. These final causes relate to the perfection of God's world and thus have teleological implications that can reveal the architectonic wisdom of the creator.

Nature has been predesigned and informed with sufficient natural force to achieve its determined ends, without subsequent divine aid. With the principle of preestablished harmony, Leibniz understands that God conserves or directs all substances to achieve their perfect ends,[66] as well as achieving the perfection of the whole.

In line with the teleology of perfection, one must understand that the perfect world of God does not imply that at any given moment in history it has attained its maximum state of perfection. The natural substances, or monads as Leibniz called them, that comprise the order of the universe are always progressing and developing. Since man images the infinity of God, his fulfillment involves perpetual progress, a theme which was integral to the myth of the Enlightenment.

The Culminating Resolution

Immanuel Kant (1724-1804), not unlike his predecessors in noting the enormous impact played by Newtonian physics in European culture, decides to vindicate the new science and its claims to knowledge beyond any possibility of doubt. Equally important to him was the validity of philosophical knowledge concerning God.

Observant of the disputes and conflicting strands of the scientific and religious tensions reaching back to the Renaissance, Kant sought a mediating philosophical solution. The inherited problems made him keenly aware that any investigation of natural science and God would have to involve a reexamination, thanks to the British empiricists' challenge, of the nature and limits of human knowledge.

Raised in the intellectual climate of Descartes and Leibniz, and aware of the Humean analysis of empirical causality, he attempts to reconcile the sceptical discrepancies between sense experience and universal, certain knowledge as epitomized in the new mechanics. Since scientific truth exists, he will inquire into the conditions for its possibility. Sense data taken by itself is in a state of flux—contingent and indeterminent, highly unsuitable for scientific objectivity. The sensuous materials of the empirical realm alone could not provide the basis for the necessary structures of scientific knowledge.

Yet a union between concept and sense experience was required in order that the a priori necessity of reason could be extended into the realm of experience, and the synthetic a posteriori data of empiricism could be given the necessity they seemed to lack for coherent knowledge.

An alteration in viewpoint was introduced—the famous analogy with Copernicus, whereby one reverses the customary supposition so that now "objects must conform to our knowledge."[67] By invoking this new supposition, "we can know a priori things only what we ourselves put into them."[68] Thus synthetic a priori knowing regards "appearances, and must leave the thing in itself as indeed real per se, but as not known by us."[69]

Given this understanding of reason, Kant can now preserve the empirical, progressive side of scientific research and provide for the a priori certainty of its claim. The object of experience and the object of knowledge are identical: the unified realm of sense appearances organized by the universal and necessary laws of Newtonian science. In this way, experience is kept within the bounds

"regulated" by knowledge.

It should come as no surprise that when Kant examined the physico-teleological argument in his *Critique of Pure Reason* (1781), he would employ his Copernican method. To speak of the "purposiveness of nature" or a "formal teleology of nature" is to speak as though the universe had been fashioned by a designer in accordance with a plan, embodying the details of the systematic whole with different parts or laws relating them. Kant sums up the theoretical dimension of man's mind by stating that: "the speculative interest of reason makes it necessary to regard all order in the world as if it had originated in the purpose of a supreme reason. Such a principle opens out to our reason, as applied in the field of experience, altogether new views as to how the things of the world may be connected according to teleological laws, and so enables it to arrive at their greatest systematic unity. The assumption of a supreme intelligence, as the one and only cause of the universe, though in the idea alone, can therefore benefit reason and can never injure."[70]

For Kant the idea of God is a necessary and beneficial illusion. He resists the older functional use of God as integral to natural philosophy (Descartes and others), by understanding the idea of God as a sort of concrete symbol of the scientist's goal of a unified theory of the universe—a working belief, one could say, in the fundamental intelligible consistency of the world under investigation.

Final causes in fact do not exist, nor do entities organize teleologically; rather, they are viewed by the observer through the guidance of spectacles, one might say, that indicate teleological organization. Teleology is an

entirely imposed intellectual vista without constitutive reference to any physical determinant. The mind can even subjectify from the idea of final cause to a divine designer, understanding him as the "ground" of the "unity of nature." We thus imagine that the purposive arrangements of nature are in nature itself, or in divine wisdom as their author.[71] But nature, the order of nature, and the source of the order of nature, are alike in being simulated, heuristic objects contained within an idea postulated by reason. For the scientist the world should be appraised "as if" it manifested such teleology. In this construction, the idea of teleology or final cause only simulates a certain "regulative" force or import for the mind, and no ontological status may be read into this postulated ground. When one, however, mistakenly assumes or ascribes to the idea the concept of a real thing, then one exceeds the conditions for the possibility of experience and is guilty of a "transcendental illusion."[72] One just has to maintain a critical constraint from imputing existential overtones to the teleological concept of nature or God.

Besides being a scientist-philosopher, Kant remained a devout Protestant Christian. Although he agreed with Hume about the impossibility of demonstrating, speculatively, God's existence, he refused to second Hume in denying any speculative role to the idea of God. Kant moves between the claim of rationalism to possess strict knowledge of God as a principle for understanding nature and the inoperative theism of Hume. The idea of God as a just creator and intelligent designer of the world is useful for illuminating the nature of the mind and its formal conditions for gaining knowledge. In opposition to any

dogmatic stance for yielding knowledge, Kant views this speculative significance of the idea of God as a "symbolic anthropomorphism."[73]

Although insulated by the critical constraint from misconstruing the status of the "object of the idea," Kant nevertheless admits that the mind is always "constrained" to give such an idea a real object. Moreover, we are virtually impelled to seek the steps to the supreme and unconditional author of nature. But due to the deficiency of the physico-teleological argument, one must "supplement" it with the ethical proof for God.

If we assume a moral nature for man, then as a "postulate of pure practical reason,"[74] i.e., as something necessitated by our understanding of morality and freedom, we must postulate the reality of God. Otherwise those practical conditions for the fulfillment of the full exercise of moral activity and religion are unrealized. Belief in God is, after all, not a theoretical problem but a postulate of the moral order.

Kant's critical purging of the physical conception of God exposes it as a necessary subjective construction, enabling him to reach out to the certitude of practical reason and claim objective reality for God. Kant shifts the traditional meanings of the relationships between science and religion into new contexts. Neither is a competitor for man's commitment any longer. Each charts its own independent realm without infringement by the other. Burtt remarks that for Kant, "science and religion occupy entirely different spheres and are given distinct functions which are so adjusted that they need never conflict. The realm of possible knowledge belongs to science,

and science has complete freedom to explore that realm by its own method. The task of religion is to enlighten our moral devotion and give it cosmic serenity."[75] The function of religion is not to reenforce scientific explanation but to support the moral life.

Kant does not avoid using God in an innovative but still functional way. Instead of the God of nature or the speculative God of Leibniz, he becomes, since assent to his existence is determined by man's moral need and subordinated to its fulfillment, the God of autonomous morality. The reality of God is affirmed for the sake of preserving the coherence and the reality of the moral ideal. Yet, by discussing the issue of teleology, the God of morals enters the realm of science again. As such he recalls the status attributed to myth: useful and anthropomorphic, but otherwise imaginary.

Summary

From our survey of the philosophers and scientists from the Renaissance to the nineteenth century, we see that the contributions and complexities of the modern period brought forth at least three distinct but interrelated trends that effected an intellectual climate within which teleology prospered:

1. First, the mathematicizing and technical power over nature. The paradigm for human knowledge was enshrined in Newtonian mathematical physics. This ideal of scientific knowledge primarily involved a necessitarian type of logic, mathematically inspired, and expressed in measurable systems of laws regarding the empirical universe.

The implications of a mathematical standard for necessity and certitude in other sciences (which, nevertheless, they accepted as their own ideal), imposes, to say the least, a strain upon them. As a result of this widely accepted standard, a cultural belief emerged that "precise measurement and prodigious calculation will lead not only to widespread human happiness . . . but to a knowledge of ultimate reality, which the philosophers have vainly sought through the ages."[76] That human intelligence could profess various kinds of necessity in its march to acquire knowledge apparently was never seriously entertained. Either one's knowledge submitted to mathematical canons or it was mere opinion and caprice. Within the methodology of this paradigm, there was no reason to employ "final causes." Explanation by organic purposes and teleology gave way to explanation by mechanical causes. Nature is subject to measurable laws whose immediate validation no longer needs the religiously oriented view of a hierarchical cosmos.

Concomitant with the new physics was the accentuation on the mechanical arts. The incredible possibilities for invention and domination over matter came out in the profusion of technical and commercial enterprises that foreshadowed the industrial revolution.[77] In Bacon's mind, the impulse of true natural philosophy was not to know the final cause of things but to have command over the domain of nature: this is the "new" philosophy.

2. Second, the emphasis upon God's transcendence. Still present in the Renaissance mind was a sense of divine immanence in the activities of nature. The dynamic formal cause could retain the organic outlook of internal, vital

energies inherited from the Greek and medieval legacy. But as mathematics abstracts from the qualitative variety of nature and articulates its homogeneous characterization of matter, the organic concept of the cosmos recedes from the consciousness of men into a more mechanically organized objective universe.

In the early period of classical mechanics, God is called upon as the supreme efficient cause, a functional subordinate, one could say, to the philosophical-scientific system. With the advances in scientific refinement and revision of hypotheses, God is no longer included in the organizing principles of science; he becomes, scientifically speaking, an unwarranted assumption, a surplus belief, relegated finally to private devotion.

The mechanistic universe mediates the objective dichotomy between man and God, which is further intensified by the pragmatic results of commandeering the material world. Man's promethean control over nature prompts his self-reliance into making God's now distant appearance even fainter. The biblical God is variously appreciated as the development of scientific progress continues. From viewing God as the first efficient cause to his becoming the impersonal clockmaker, the cosmic architect, he is gradually screened out from having any intrinsic incorporation into the advancement of science. Eventually, he is eliminated entirely by the materialism of the French Enlightenment. At the same time, teleology underwent a kind of demythologizing. In their search for power over nature, men no longer saw the necessity for aligning their newly found knowledge with the medieval hierarchical scheme that portrayed a cosmic order. Nature was not for

man's speculation; nature was for bending to man's will. Purpose in nature took on a more practical cast with the rising commercial and industrial classes. Teleology is grounded, its transcendental dimension expurgated. Instead of doing away with teleology forever, the wedding of science and technology introduced a new form of finality—a mechanized teleology. The world has been rediscovered as a machine, almost a pure form of teleological organization. Hence the purpose of science is to widen its empire.

3. Third, the phenomenalizing of temporal things. The world becomes an art form. In this period, however, nature is not imitated but inaugurated. The intrinsic being of nature is unknown and unknowable territory. The determinants of nature are not apprehended from things in themselves. The mind only knows about nature what it puts into nature. The Newtonian world is confirmed by Kant at the price of the speculative knowledge of God. What was a distant, though reassuring, appearance in the sky of life turns out to be a dead star upon the horizon of scientific consciousness.

The Romantic Protest

Before speaking about the cultural teleology forged by beliefs in mechanistic nature and the rational optimism of human progress (K. Becker calls it a "secular eschatology," an almost unrestrained vision of the heavenly city on earth[78]), a brief word must be said regarding a development that protested the scientific ideal of the Enlightenment.

The scientific temper of mind was challenged by what historians refer to as "Romanticism." Randall points out that during the close of the eighteenth century a reaction set in with great vigor that "emphasized the emotional rather than the rational side of human nature, a richly diversified development of individuals and groups rather than a mathematical uniformity, and, most significant of all, the genesis and growth of things rather than their mechanical ordering."[79]

This reaction showed up especially in the literature of the day, in such authors as Goethe, Shelley, Byron, Coleridge and Wordsworth, and in the philosophy of German Idealism. For them nature was not a machine but a vibrant source of inspiration, almost a living companion. God, likewise, is not the aloof disconnected and external creator of a technological masterpiece, but a spirit dwelling in the human soul, stimulated into man's awareness by the beauty of nature and self-intuition.

By emphasizing the neglected emotional and imaginative sides of human nature, the romanticists, in refusing scientific analysis as a criterion for understanding man, shared a common preference with the upsurging Pietist and Methodist movements in that designation of life called experience. Personal experience, with its attendant emphasis on freedom, individuality and wholeness, spread into an evangelical revitalization of traditional Christianity, affecting both Europe and North America. Although the recovery of the biblical view of God did not address itself to the questions regarding the interrelationship between God and nature; yet the features of growth, development and historicity produced a strain of intellectual insight

that would be taken up in the following century with the discoveries comprising evolution.

5

A Prelude for Recapitulating the Story of Teleology

From our limited investigation, Western man can be seen to be perennially interested in understanding himself and the world around him. His history is replete with epochs that culturally designate those meanings that he discovered and upheld as significantly important to give direction to his existence. In taking up the historical task of completing himself, the very pursuit of this response to existence would seem to imply a teleological structure, demanding categories of purpose in thought and action alike, if the dynamics of the pursuit are to resolve themselves with sufficient coherence.

Yet man's diverse traditions of ultimate meaning, involving modalities of consciousness from myth to modern science, have not always agreed that the recognition of the constitutive principles of reality are teleological in their history. Vigorous opposition arose after the sixteenth century and, supported by cultural changes, developed a momentum that enlarged its influence upon the whole of society.

One could divide Western history into two ages: the age of the teleological cosmos and the age of the

mechanistic universe. Even though the second age reacted strongly against the cultural complex that signified the medieval spirit or outlook, nevertheless, in its efforts to replace the older perspective, it actually reinterpreted teleology anew, and made its tenor even more deterministic. To look upon nature as a machine is obviously to admit a purely teleological entity, one that is derivative and purposeful.

Before delving into this issue in detail, let us reveal the various factors that account for the shift in the interpretation of teleology and its correlations with man, nature and divinity, as these affected the totality of man's life after the middle ages.

The Age of the Teleological Cosmos

From the Hellenic period through the middle ages, Western culture as a whole had accepted and interpreted life and history within the horizon of a cosmic teleology. The exercise of consciousness upon the world at large during these centuries produced distinct mythical, philosophical and scientific categories and modes of thought that reenforced a common vision of reality as a basically teleological enterprise. Man was understood as a self-conscious, goal-directed being. He could experience intentional purpose as a practical mode of his being. By converting thought into practical action he successfully realized his potentialities. With teleological guidance, man had a richer context in which to define himself by making his definition come true in himself.

The study of nature, while admitting chance causes

as exceptional occurrences, also exposed finality in all its basic processes. Man could sense himself a part of this ordered finality that spanned the world of his experience. Philosophical and scientifically conducted inquiries detected the world as a hierarchically-ordered cosmos, allowing for the presense of a transcendent goal. Religious consciousness confirmed, in different ways, the hierarchy of matter and life as a sacred totality, whose origin and proper destiny were under a universal providence, and proposed in some instances a specific transcendent goal as the completion of human life. Existence was meaningful because it was full of purpose discernable by human intelligence that itself was purposefully oriented in its activities.

Differences of interpretation and development of insight into the symbology of man, nature and divinity proceeded in their cultural emphasis during these centuries. But in spite of contrasting cultural patterns, there continued from the Hellenic period into the Renaissance a theoretical and practical conviction that the fundamental context of reality was of a teleological nature.

Since through the optics of teleology one discovered the goal of being in all its historical and cultural potentials, the formation of religious consciousness enforced and modified the teleological categories. These categories entered into the symbolic composition of religious consciousness in specifying the latter's bond of unity between man, nature and divinity. By integrating the meaning of these ultimate symbols as they developed in his experience of their cultural formation, man used them to complete the quest for human fulfillment. By the nature of their

ultimacy, and in their particular arrangement or emphasis of meaning, these symbols structured man's life in its entirety. And as this symbolic complex underwent changes, man began to decipher the differentiations in the spectrum of religious consciousness during these nineteen hundred years of cultural history.

The Age of the Mechanistic Universe

Looking back again over historical epochs, one can spy a temptation amongst these periods to preserve themselves in their symbols by fixating the content therein. Eventually this attitude of mind defeats itself by denying its own historicity.

Exceptions there may be, but the high middle ages developed an attachment to its own cultural understanding that viewed its orderly interpretation of reality as complete and immutably exhaustive. The historical dynamism of the overall features of reality came to a halt; they had arrived at their historical apex. Restricted to their medieval versions, teleological categories were now closed or rounded off, as it were, since they were no longer improveable in their meaning. The medieval consciousness saw itself, as any consciousness of ultimates tends to do, as the culmination of man's quest for the fulfillment of religious consciousness. Cultural history had risen to its final expression. A divine purpose had supplied the created world with all the essentials to transcend mundane limitations; the cosmos had been created for the purpose of furnishing the background for the drama of mankind's salvation--the transcendental fulfillment of man's nature

in an eternal, visible communion with the supreme God. The final age of history was here.

However, further potentialities extending beyond the medieval mind were close at hand. History continued. Wider opportunities for cultural and religious expression asserted themselves. The acceptance of medieval norms was no longer absolutely essential to human survival. In attempting to narrate the complexities that account for the revolution into modern consciousness, a larger depiction that envisaged here would be required. Consequently, let it suffice to point out certain events in keeping with the development of our study.

The teleological values symbolizing the unity of medieval consciousness could not easily incorporate, tolerate or banish the newer forces comprising the cultural pressures at hand. Let us name a few. First, there was the growing rejection of the authoritarian Aristotelean-Scholastic approach to understanding man and his world just because, and to the extent that, it had become authoritarian and arbitrary. In opposing this inherited tradition, the humanism of the Renaissance gave fresh impetus to man's moral and intellectual worth. But even this effort at emancipation from the medieval structures discovered its shortlived but positive limitations. Secondly, there was the discovery of the New World, along with the demographics of Europe's expansion of townships. A climate was created for exploration and colonization of the globe. Countries were caught up in the waves of interest for additional trade routes with the East, extending national borders and stimulating the rise of domestic commerce. The proliferation of Christian denominations

from the Reformation movement brought new problems and questions that affected changes in the older, medieval replies. Intellectual interests appreciated less the medieval concern for contemplating nature for its own sake, than utilizing scientific investigations in the practical relief of daily problems on this planet. Together with these shifts of interests, evaluation shifted, too.

Thirdly, there was more of an insistence to study nature at first hand, which broadened into a sustained interest among the philosopher-scientists, who developed a more positive, experimentally-grounded science of the mathematical structure of nature. When one considers these redirections of social energies that created the national churches, the national states, the religious wars, and the theory of mercantilism, along with the contributions of Montaigne and Copernicus among others in philosophy and the natural sciences, it is not surprising that the medieval synthesis could hardly represent these times of unparalleled change.

The weight of the medieval symbols was unbalanced by these cultural forces that could not submit, assemble nor reassemble themselves into the feudalistic patterns. The symbolic ideal of subordinated purposes traversing the whole of reality could not restrain the changing social horizon any more than its wave of mechanistic interest in the hitherto undisclosed malleableness of nature.

The ambitions of the time changed. The older categories gave way reluctantly to the newer emphasis of redirecting purpose to power over the future—an earthly future. Teleology itself at this juncture is reinterpreted

and given a more quantified plane of direction that agrees with the Newtonian coordinates; its categorical name is "Progress."

The Triple Coordinates of General Mechanis, Progress and Evolution

To appreciate the newer version of cultural teleology that shaped Western man, and to avoid seeing teleology itself as an isolated issue unconnected from the dynamics of culture, we have to fill out our prelude by noting the impact that mechanism and the optimism of progress held for those centuries.

The First Coordinate: Teleology as General Mechanis

Various reasons may be protested, but the reception granted Newton's new mechanics for the next two centuries approached adoration among the intelligentia of Britain and the Continent. Not just philosophers and scientists, but even humanists, literateurs, politicians, artists and merchants found an eclectic but practical inspiration in his scientific vision for their lectures, writings and projects. For these men, learned or otherwise, the potential monopoly of this single vision collectively aroused a kind of operational worldview seemingly delivering no field of human endeavor unaffected by its canons.

Tawney points out how a new world of economic and political thought resulted from an alliance with science, whereby a "new calculus" now dealt with "impersonal

economic forces."[1] The scientists of the Royal Society of London were praised in their efforts in bringing "all things as near the mathematical plainness as they can."[2] Matson remarks that the temper of the age involved the "systematic reduction of all subjects and fields of knowledge to the dimensions and categories of natural science. Philosophy tended to become "natural philosophy," biology virtually a branch of mechanics, and psychology the anatomy of the human machine."[3]

Spinoza (1632-1677) had proposed earlier to understand man's moral nature as he would analyze so many geometrical factors. While men certainly entertain ideas and beliefs in their personal freedom and the finality of nature, they labor, according to him, under misconceptions due to their ignorance of the inexorable efficient causes comprising all of being. "Nature has no fixed end in view," he tells us, "and that all final causes are simply fabrications of men."[4] For Spinoza, "finality" would invert the true notion of causality by subordinating the efficient cause to the final cause, thus making "that which is first by nature to be last."[5] Mechanical determinism ruled the forthcoming days.

Final causes were identified with antiquity. The enlightened age demanded new practical arts and sciences that would enlarge man's power over his environment. The mechanistic philosophy provided a vibrant groundswell that arranged science and commerce, the liberal arts as well as the servile, to be developed as interdependent, interacting parts of the same social fabric. The discarding of old, outmolded medieval ways and the fostering of freedom in politics and invention in industry allowed and

legitimized progress in one sphere to generate new ideas in another. The profusion of energies involved in igniting the Enlightenment exceeds our task, but its pursuit of modernity was fired by the scientific revolution. Every field labored to apply the concepts of classical physics. The general development of the era shows a sort of unrestricted trust in conventions which were taken and identified as "natural" facts.

Bornowski examines the century and finds its scientific ambitions to envisage "a mathematical finality," not only with the more prominent disciplines but even to the reaches of "history . . . and geology and mining and spinning."[6] A profoundly different concept of human nature than that of the middle ages can be read in La Mettrie's (1709-1751) work *L'Homme Machine* (1748). Crombie notes that for the French physiologists of the *Encyclopedie* (1751-1777) fame—Diderot, D'Holback, Condorcet, Fontenelle and Cabanis—"man became nothing but a machine; consciousness became a secretion of the brain just as bile was a secretion of the liver; and the physical and physiological laws as they conceived them were taken as the norm of the laws, not only of mind but also of history and the historical progress of society.

Directly descended from the Cartesian, mechanical philosophy and the Newtonian physics, these conceptions developed by the eighteenth century French natural philosophers and sociologists became the direct ancestors of the materialist doctrines associated with Charles Dawwin's (1809-1882) theory of evolution and its sociological extensions into the nineteenth century doctrine of progress."[7] While Claude Saint-Simon (1760-1825), who

thought that morals and politics were the consequence of universal gravity, and Auguste Comte (1798-1857) were busy establishing their positive society, Jeremy Bentham (1748-1832) and James Mill (1773-1836) in Britain were applying, in their Utilitarian philosophy, Newtonian principles to private morals and public affairs. These gentlemen saw the possibility for enacting a science of legislation that would manifest an objective social order, guided entirely by mechanistic principles. The hallmark of social and personal morality was the compliance with the mechanistic laws of human nature. People were like social atoms, having similar weight and gravity and motivated by the same springs of human action. A society built upon sound, scientific principles was only a matter of time.

The Second Coordinate: Teleology as Progress

The ceaseless preoccupation with empirical observation, applied mathematics and experimental methodology harvested a series of discoveries and reports that revolutionized man's self-understanding and utterly discredited the cosmos synthesis.

The medieval acceptance of the Aristotelean doctrine of a radical difference between celestial and terrestrial matter, whereby the former was accorded properties of immutableness, perfection of form, uniform and semi-eternal motion, greatly enhanced the idea of a teleological hierarchy of being, qualitatively measured, on a scale approaching perfection as it receded from the dense, material center of the earth. While the astronomers showed

that the heavenly bodies followed universal and regular laws, their additional observations ascertained that these bodies were not perfectly circular, nor moved in circular patterns, nor at a uniform speed, nor was their matter substantially otherwise then terrestrial matter. And with the experimental confirmation of the Copernical theory removing it from the level of sheer mathematical calculation into physical reality, man and his planet were no longer at the immobile center of the categorically fixed cosmos. The vertical symbolism of an organic cosmos was transformed into a more linear uniformity of nature. The older, qualitatively-graded categories of existence, depicting a scale of more and more perfect beings was abandoned.

To cross the threshold into the modern spirit, the world of the "New Philosophy," as Bacon, its greatest prophet, named it, consciousness turns from its former passive contemplation upon an invariable and unalterable cosmic order to a deliberate activity of mind that will transfigure mankind into a utopian future. The interpretation of reality through the lenses of "final, set causes" is eschewed. The only intellectually productive way engaging the universe is through the empirical methods of natural science. The old gnosis from medieval times which saw the world alive with purpose, and inferred divinity never far beyond the surface of nature's appearances, must yield to a superior vantage point. The importance attached to final causes as fixed determiners of nature restricted natural processes and its productivity to a limited number of stereotyped results. The medieval scope of inquiry with its traditional categories was too limited in assigning to

nature its narrow round of cycles and processes.

It was not a time for the redemonstration of ancient knowledge, but a time for the experiments and experiences of new facts, probing into the unknown but beneficial future. The body of knowledge bequeathed by our ancestors was now to be critically tested by new experiments. Man must seize hold of nature with a conquering spirit, for her secrets do not lie on the surface, available to mere contemplation. There must be an active and aggressive investigation. Merely repeating the older categories of learning blunts the spirit of investigation and confines human intelligence to the risk of degenerating into unwarranted dogmatism and superstition.

By deemphasizing the importance of the customary final causes as categories of methodology and redirecting the emphasis to the efficient and material causes, the malleableness of nature became the novel object of exploration and discovery. The retention of older truths justified themselves by their useful assistance in detecting new truths. The realization of preconceived ends subordinate within the feudalistic boundaries of yesterday could be overcome by construing the world as an unlimited mechanical field for exploration.

Moreover, when consciousness desists from thinking in terms of fixed essences and absolute hierarchies, then the application of mechanical formulae can be turned to human profit. When nature is regarded as mechanical, then systematic invention and construction of machines relevant to nature's activities can supercede the former fixed limits of traditional change. A new, indefinite teleology emerges. Nature becomes subdued to human

purpose, allowing an unlimited horizon of new ends and aims to be substituted for the older molds of activity.

The Desacralization of Nature

This symbolic revision of life's meaning was protrayed by Bacon as a world in which the incremental and systematic growth of knowledge, in time, would render assertive control over the idiosyncracies of matter and motion. The twin partnership of cumulative knowledge and power over nature encouraged a practical and progressive idealism in action. And the central force, the perfect means for achieving the "New Atlantis," was nothing less than the highest form of consciousness—scientific rationality. This anti-teleological beacon, all the more heralded for its impersonal and objective constitution, illuminated the universe for the next three hundred years in its earthbound teleology.

History embarked on a new age where the scientific temper joined with the mechanical arts and crafts to eliminate the woes of mankind. The symbolic import of scientific rationality was further legitimatized by receiving sufficient biblical support in those passages of Genesis regarding man's dominion over nature. Given the religious feeling of the times, a better correlation could not have been made. Furthermore, the scientific-technological paradigm interacted with philosophical humanism and its concerns for the social betterment of the people. With the *anien regime* becoming an historical anachronism, a new egalitarian mood introduced two new words, *bienfaisance* and *humanite*[8] into the social tracts of the enlightened

philosophers.

The social thrust of the era was more than a secularized charity; it summed up a colossal movement of radical reform. One finds an unprecedented conviction for the improvement of the human race and singularly the perfectibility of the individual man that borders on absolute omnipotence. The transfer of interest from the supernaturalism of the medieval age to the view of man as the sole purpose unto himself allowed the cult of posterity to become the teleological replacement for the hereafter.

The Retirement of God's Power

The last vestiges of viewing nature as embedded with final causes dissolved through man's impressive manipulation of empirical reality. The rights of man to become possessors and dominators of nature could take place without alluding to divine forces or supernatural intentions. From the religious perspective, what was being disputed, as F. Baumer mentions, "was not God's existence, but his power."[9]

The notion of God's sovereignty became understood as that of a king who reigned but did not rule. The work-a-day God of Boyle and Newton, the deity who inaugurated and managed the churning of the universe, receded to the God of the Sabbath, where he exercised a vague providential care, always at a distance, over his developing world.

The industrial revolution continued unabated. Although the promise of the future disdained any allusions to the medieval teleological suppositions, the enlightened

humanism of this period kept enough mechanical finality in its vision by making a curious substitution. Foremost in its visionary projection stood man—not divinity—as the centrifugal force from which spread scientific advancement and mechanical inventions, politics and ethics, the whole array of enlightened ideas and concrete structures that will continually produce catastrophic turns for mankind's betterment in the unfolding determinism of history.

An Unexpected Ally: Evolution—a Third Coordinate

If we may anticipate the major contribution of the nineteenth century to this unfolding picture, the complete portrait emerges.

With the doctrine of Progress combining with the classifications of life, reaching back into the roots of time to join origins with the perfectible future, the transcendental God of the Newtonian world of mathematical holiness seemed to be dissolved into the ageless mists of organic evolution. The philosophers of evolution could now support the mechanistic portrait of man by interpreting him even more from the physical laws inherent in organic evolution. Biological thought continued to lean more toward strictly material causes for organic development.

Thus, for Thomas Huxley (1825-1895) the progress of science meant the unlimited "extension of the province of what we call matter and causation, and concomitant banishment from all regions of human thought of what we call spirit and spontaneity."[10] Darwinian evolution

climaxed the Newtonian worldview by furnishing the "basis for the final reduction of the organic and human world to the physical laws governing the inorganic universe."[11] Ernst Cassirer referred to this event as "the same iron ring of necessity that encloses both our physical and our cultural life. In his feelings, his inclinations, his ideas, his thoughts, and in his production of works of art, man never breaks out of this magic circle."[12]

Darwin's presumption reflected the broader momentum of the era: the general pattern of evolutionary development could not be a retrograde process of a morally indifferent one; it must be an ascending progress. Compared to the medieval cosmos with its eternally fixed categories of undeviating purposes repeating their orthodox cycles, the world of evolutionary progress presents a linear history of successive beings in which man's indefinite nature becomes the revolutionary symbol, the comprehensive summary of nature's non-purposeful forces.

The heralding of evolution proved to be most congenial to the strange optimism of these modern centuries—strange, in that the mounting estimation of man's grandeur, inherited from the Enlightenment, was in direct proportion as men approved their reduction to enlightened automatons. For them the universe was an engineering masterpiece of energy and matter vacant of final causes and human subjectivity.

Nearing the end of the nineteenth century (the Romantic movement notwithstanding), the cultural preservation of scientific rationality was so assuring in its promises as to be highly regarded. Its evolutionary presence in human aspiration was so prevalent in intellectual

circles that any revival of interest in the older notion of finality within nature or, for that matter, in any transcendental sense, was looked upon as superstition and unnecessary in understanding the meaning of human nature or its progressive destiny.

The loss of the sense of transcendence in the professional and academic realms, and the discrediting of teleology as a viable category of knowledge narrowed the natural polymorphism of consciousness, witnessed since the Hellenic period, to the only legitimate interpretation of existence—scientific rationality. It soon became the modern paradigm of all knowledges worthy of the respect for accuracy and truth. The cumulative effect of the West's fixation with the terrestrial feats of the physical sciences and their related technologies produced such a unified impact upon the formation of cultural consciousness that modern man presumed it the ultimate and comprehensive meaning of life.

A Reflective Comparison

Until the sixteenth century, Western man accepted the place of teleology in his cultural outlook because he understood himself and the dynamism of the world as a developing reality whose meaning was better comprehended in terms of goal-like categories. To understand life at all its levels was to use concepts and symbols that depicted the various kinds of order prevailing in reality. Although there could be moments of chaos, life was essentially a universe of forces and energies, dynamic potentialities and regular occurrences that elaborated an

interdependent and organic scheme of relationships. To speak in the above manner, along with the use of terms like "ends" and "means," "purposes" and "goals," "connective associations," is to supply the symptoms for the intelligent pursuit of meaningfulness in a meaningful world. In a word, these terms are symptomatic of teleology.

Emerging from the inspection of the eras and epochs of man's attempt to understand himself, the world of nature and culture is a teleological history of the concrete goals expressed by human consciousness. In every major period that we have examined so far, there is a unity of purpose binding the cultural totality, and thus giving a final meaning to the complex. The finality itself may be looked upon from different perspectives. In the medieval period, the finality took on a somewhat rigid formation in the minds of its citizens, allowing for development of course, but only within certain boundaries that history showed could be more open than expected. Where a culture fails does not disqualify the existence of teleology, but only shows (usually upon later analysis) that man's consciousness assumed a superficial stance in interpreting the teleological categories of his time. On the basis of its self-understanding, the medieval complex could not become the modern era. And yet this development took place in an unprecedented manner—with its own purposes in mind. Even when a society rejects the formal category of final causality or teleological import, the necessity of the human consciousness still employs teleological structures and content in order to give meaning and direction to its exercise. The modern era is no exception.

Even in its rejection of the medieval synthesis, the modern era still proposed its own version of teleology. For the basic assumption postulated that human progress can be related to technological improvement and the advancement of scientific rationality. When scientific and technological progress was allied with the concept of emergent evolution, then the last hesitation about abandoning a sense of transcendence was demolished. Man's destiny was sealed within his finite, but unlimited, world. And the assumption that this interpretation of reality is full of ultimate significance will eventually ring hollow, as we shall point out later.

In the place of the medieval synthesis and its cosmic implications, the momentum of the modern era gradually composed its own sense of ultimacy, guided by its myth of modernity. An almost implacable, steady, persistent, mechanical progress was expected since the breakthroughs of the sixteenth century. Exactly how evolutionary theory fitted into this complex interpretation of reality needs to be inspected in order to show how the belief in progress persisted, yet proved empty of its promise. Moreover, since our century has inherited the resulting momentum of this frame of mind (i.e., the myth of modernity), we can best appreciate our state of health, so to speak, by noting the factors which have produced the consequences affecting our cultural situation. It is included in this chapter on teleology because, in spite of its disclaimers of being associated with final causes and similar terms, it is covertly teleological. It is very definite in its purpose, is goal oriented, convinced of the authenticity of its means for achieving the utopian future, and, for some,

assured of its success by the inspiration of certain passages in the Bible that endorse its cultural program; for others this last note was irrelevant. Kant had already shown that conventional religion was a private affair, divorced from the realm of scientific advancement. For now belief in the mechanical progress of society was the dominant attitude of mind that received a spectacular boost when it was associated with Evolution theory. Let us now examine its specific contribution.

Progress and Evolution: The Completion of the Myth of Modernity

The outlook for Western civilization was enamoured by the optimistic momentum of the Enlightenment under the impetus of the idea of man as a progressively developing being. The material advances in the technical conveniences of life with the increased control over the forces of nature gradually abridged space, economized time and eased bodily encumbrances in society. Technical inventions proceeded uninterruptedly. The educative opportunities in all branches of knowledge and the unparalleled expansion of industry and commerce "accustomed the least speculative mind to the conception that civilization is naturally progressive and that continuous improvement is part of the order of things."[13]

The idea of general Progress broadened its base and reoriented its future when it was associated with the notion of evolution. In the previous century (the world of Saint-Simon, Comte and others), men had understood their notions of a necessary law of social development in

history without viewing it, however, in terms of a similarity to those laws which prevailed in the sub-human realm. Now, in positing the emergence of the human species from a non-human ancestry, similarity gave way to continuation of those same laws. Hence evolution provoked inescapable questions and revisions regarding the origin and development of every aspect of human culture, not the least of which would be questions of religion. The solutions to these issues assumed full-scale theories of social evolution, sometimes referred to as "social Darwinism."[14]

Darwin's Contribution

Charles Darwin's (1809-1882) publication of the *Origin of Species* (1859), as it was called, startled the world. The ferment produced by a biological theory that advocated progress through conflict was extended, fairly or not, to explain the origins of the entire universe as well as the progress and destiny of every aspect of human culture. People in every profession were arguing sides for its plausibleness. It seemed not only to confirm the Newtonian universe, but supplied a factor that enhanced the mechanistic understanding of life. The notion of change and development was rooted in the contingencies of matter and could now serve as the basis of a law of evolutionary progress.

Darwin specifically rejected the notion, commonly accepted, that plant, animal and human species originated from a special act of divine creation, a transcendental source, which firmly fixed their forms forever.[15]

Evolutionary change, not immutability, he proclaimed, is the law of life. All living organisms are the products of minute alterations gradually extending throughout vast periods of time, tracing their ancestry to ancient forms that are usually quite different from the current species.

Darwin observed a ceaseless struggle taking place in the non-human realms. Organisms unable to adapt to their environment failed the struggle and left no descendants; those who possessed sufficient variations in adaptation to their changing circumstances survived and transmitted these favorable capacities to their progeny. The entire process became termed as "natural selection." Later editions of his book used the expression "survival of the fittest," a term borrowed from his friend, Herbert Spencer (1820-1903).[16] The process of evolution that involves significant alterations in species must be appreciated over eons of time, incorporating billions of random variations.

Actually Darwin did not invent the idea of evolution. Before him, philosophers and scientists had written about evolution in their speculations and theoretical hypotheses. Scientists like Lamarch (1744-1829), Buffon (1707-1788), Wells (1828-1898), and especially Darwin's contemporary, Alfred Wallace (1823-1913), who had already written on natural selection, had proposed much the same notion without startling results from their peers. For almost twenty years, Darwin carefully studied his specimens, reenforcing his accumulating knowledge with his observations of animal husbandry.

Just as farmers breed their herd for superior characteristics, so nature selects the best organisms for survival.

Darwin's reading of Malthus's concern when the increase of world population exceeded the available food supply helped convince him that in the realm of nature the struggle for existence would allow only the fit to survive. Darwin mentions that "being well-prepared to appreciate the struggle for existence which everywhere goes on, from long-continued observation of the habits of animals and plants, it at once struck me that under these circumstances favorable variations would tend to be preserved and unfavorable ones to be destroyed. The result of this would be the formation of new species. Here, then, I had at last got a theory by which to work."[17] In an age of intense commercial expansion and competition, Darwin's proposal that the process of evolution is a struggle for the survival of the fittest seemed to make sense in every field of human endeavor. In its way, it gave a breath of insight into the creative and destructive sides of matter and life.

Evolutionism as a Worldview

With the release of his new book, *Descent of Man* (1871), Darwin attempted to universalize his basic insight into the origins of life itself as well as be the total summation of history. A master idea that brought man into the continuity of animal descent and origin, it claimed that human nature differed only by degree, not kind, within the animal kingdom.[18] Value by survival, evolution because the sufficient and pragmatic explanation for every natural entity and its activity from astronomy and economics to religion and psychology. The inherent dynamics of survival through struggle and adaptation became,

in much the same fashion as Newton's contributions, an ultimate resolution to the riddle of existence. Biological evolution evolved into evolutionism. Controversy ensued.

In 1889 Alfred Wallace, considered the co-discoverer of evolution, wrote a critique entitled *Darwinism*. He challenged Darwin's prevailing inclusion of body and spirit along the pattern of common descent with modification by natural selection.[19] He insisted that biological evolution pertained only to that realm, and that man's psychosocial faculties derived from a different origin. Throughout his career he continued to write and disagree with a whole host of "social Darwinians," among the more influencial being Thomas Henry Huxley (1825-1895), W. G. Sumner (1840-1910) and Herbert Spencer.

Huxley defined mankind as "conscious automata" and maintained that "all vital action may . . . be said to be the result of the molecular forces of the protoplasm which displays it."[20] When the new field of sociology placed the drama of human life within an evolutionary context, Sumner announced that "we are convinced that this way of looking at things frees our treatment from a current tendency, which we regard as confusing and unproductive, to refer societal results to conscious, reasoned and purposeful action on the part of the individual."[21]

The biological confirmation of the Newtonian world seemed to explain the progressive temper of the age, enthralling and captivating, as J. Barzun remarks, "a generation of thinkers whose greatest desire was to get rid of vitalism, will, purpose or design as explanations of life, and to substitute for them an automatic material cause."[22] Darwin himself was quite aware of the cultural implications

of his theory, for in the concluding chapter of the *Origin*, he mentions: "In the future I see open fields for far more important researches. Psychology will be securely based on the foundation already well laid by Mr. Herbert Spencer, that of the necessary acquirement of each mental power and capacity by gradation. Much light will be thrown on the origin of man and his history."[23]

Even before the publication of *Origin*, Spencer had espoused a total evolutionism that incorporated the idea of progress: "The ultimate development of the ideal man is logically certain—as certain as any conclusion in which we place the most implicit faith; for instance, that all men will die. Progress, therefore, is not an accident, but a necessity. Instead of civilization being artificial, it is a part of nature; all of a piece with the development of the embryo or the unfolding of a flower."[24] The perfect society results necessarily from man's biological adaptation to the laws of nature.

Spencer's optimism for the inevitable perfectibility of man was questionable on scientific grounds for many scientists. But the event that muted his theory in the eyes of many was the tragedy of World War I. While the fundamental social consequences of the industrial revolution were evident in the continual transformations of cultural life, even Huxley was resisting a too broad application of biological survival as the criterion of progress, for he quickly recognized that if "improvement" of any species means a higher advantage gained in competition in a given environment, then there is no satisfactory appeal to prevent one nation from trying to prove its fitness by invading another country.[25]

Although the idea of change and continuous development was becoming the scientific ideal for interpreting reality, serious consideration of its universalization brought up tensions and antinomies. For even Darwin discovered the curious irony of his belief in evolution. He speaks of the "impossibility of conceiving this immense and wonderful universe, including man with his capacity for looking far backwards and far into futurity, as the result of blind chance or necessity. When thus reflecting I feel compelled to look to a First Cause having an intelligent mind in some degree analogous to that of man: and I deserve to be called a Theist . . . . But then arises the doubt, can the mind of man, which has, as I fully believe, been developed from a mind as low as that possessed by the lowest animals, be trusted when it draws such grand conclusions."[26]

Some scientists and theologians wanted to equate the operation of natural selection with teleology. They admitted that the evidence of geological and biological accounts forced a nonliteral belief in the events recorded in the seven day presentation of creation in the opening chapter of Genesis. The process, while it may be attributed to God as the instigator, certainly took longer and was more complex than expressed in those simple descriptions announced in the Bible. Darwin would have nothing to do with this faulty explanation. He insisted that to posit each variation as providentially arranged makes natural selection entirely superfluous, and effectively removes the presence of new species from the domain of science. For Darwin, the variations over time are due to "unknown causes, and are without purpose, and in so

far accidental."[27] Adaptations were more final results than final causes. Evolutionism thus climaxed a trend that definitely abandoned belief in God as a scientific principle.

For the nineteenth century, the watchmaker creator of the Enlightenment has vanished. With the advance of rational scientific accounts of how the world came into being, many religious men still believe in a creator behind those long processes, but they do it on religious rather than on scientific grounds. When the mechanistic world and its rational deciphering by science is now based upon evolution, a disquieting ambiguity emerges. In heralding an idea that unifies the understanding of nature and society through the dynamism of change and progress, the scientific acceptance of evolution strangely reinforces the irrationalism that the Enlightenment attempted to overcome. If the material changes and the higher life forms are the product of enormous large number of spontaneous variations occurring entirely independently of each other, then the final result is accidental and unpremeditated. The lawful regularity of nature and the design of species are only temporal arrangements, temporarily appearing as order until their autonomous and mechanical forces randomly alter them once again. The function of reason is only a specific form of biological adaptation. Human culture is now part of nature. The growth of mankind is the history of group struggle. The viewpoint of evolutionary biology joined with the prevalent mechanization of reality and influenced every sector of culture into the twentieth century, revealing human nature not merely as the deterministic consequence of mechanical laws but as

the random aggregate of laws whose foundation is blind chance.

Conclusion

Before the turn of the century when the newer discoveries in energy revolutionized the scientific community, mechanistic principles were submitted to reinterpretation within the context of evolutionary theory. Mechanical analysis of reality was not so much threatened as broadened by placing it within its history and revising it into an evolutionary method. Since all fields of knowledge shared a history, they could equally qualify within the spectrum of evolutionism.

Biological experiments at this period indicated that organic processes could be explained by chemical reactions. The phenomena of life apparently shows no fundamental discontinuity from non-living matter. Every new phenomenon is the rearrangement of primary matter already present within the universe. The ready acceptance of evolutionary theory softened the rigid determinism of Newtonian mechanics by legitimizing the factor of change and development.

The major notions in Darwin's books sustained their impact within a mechanistic framework, and thus avoided a scientific conflict that would later emerge in the twentieth century when biologists began resisting the mechanistic reductionism of life. The Newtonian world now included mechanistic biology. By utilizing evolutionary theory to explain everything from astronomy to ethics and mankind's origins, history was itself "deified

and made into a sacred force with which mortal hands must not meddle; for the course of human events was held to be guided by some vague but purposive power, to interfere with whose designs was sacrilege. It was the prevalence of this teleological view of history that made it easy to assimilate the new evolutionary philosophy when it pressed in from biology; Darwin seemed only to have furnished an exact scientific confirmation of the presence of this cosmic power."[28]

This is a strange teleology, in that looking to the origins of any process, belief or custom for its value, one attributes the process of development to fortuitous hereditary variations or mechanical selection from the environment—in a word, abiding chance. Mankind was living in a Newtonian world whose rationale was ultimately the outcome of blind chance. The prevailing mood of many scientists saw the evolutionary proposal as a comprehensive synthesis that explained reality still within sufficient continuity with the inherited Newtonian worldview, and were very soon to appreciate even more the upsetting role of chance in the trend that physics took.

6

The Collapse of Belief in Progress: Modernity Reinterpreted as a Secular Universe Founded Upon Chance

The Disquieting Twentieth Century

The foundations for supporting the myth of modernity, as the nineteenth century proposed it, had been fully revealed: mechanism, progress and evolution were the interlocking coordinates that structured the entire universe.

With these principles pervading reality, the upward-bound movement of history would elaborate the perfectibility of human society. Man himself held the key to his destiny—he could literally make the future almost what he wanted. By destroying the ignorance of the past and returning to a rational cultivation of nature, man could be educated and labor toward an ideal society. A veritable millennium was now at hand.

Three events that occurred with the passage of this apparently undeviating history shook the myth to its foundations. (1) First of all, there was the scientists' own discovery, however reluctant, that the universe was richer in its complexity than the Newtonian portrait displayed it. (2) There was the unsettling reactions to the

inability of nations to live in harmony with one another, as depicted by World War I and its lingering consequences. (3) There was, as a result of these two persistent factors influencing culture, the scientific and cultural resignation that life is ultimately meaningless; one takes his chances with existence because that is all one has: random opportunities that have no ultimate rhyme or reason.

Our attention now must be focused upon these major factors that have left their mark on the twentieth century. The largest area of concentration shall be the third factor since those who uphold this position propose it as a determination of ultimacy—the death blow to teleology forever.

(1) Decline and Revision of Mechanism

According to historians, Newtonian physics was not seriously challenged until the last quarter of the nineteenth century. Then "the great change was brought about," as Einstein (1879-1955) recounts, "by Faraday, Maxwell and Hertz—as a matter of fact half unconsciously and against their will."[1] Their startling research into electricity, magnetism and light was unable to be interpreted upon a mechanical model.

The resistance of these discoveries to fit into the inherited classical picture kept many scientists from fully appreciating their implications. Dampier remarks that the followers of classical science "assumed that they themselves were dealing with realities, and that the main lines of possible scientific inquiry had been laid down once for all."[2] With more crucial experimentation being reported,

the atomic world of energy was detected to be less literal than classical physics had supposed. Maxwell's (1831-1879) electromagnetic theory, coupled with the discoveries of radioactivity processes at the atomic level, upset the customary idea of the indivisibility of the atom as well as its mathematical determinism. Scientists soon discovered that radioactivity does not have an absolute mathematical predictability but obeys only statistical laws. The determinism of the Newtonian world was in peril.

The early premonition of a new, nonmechanical and nondeterministic concept of nature, sensed by few and resisted by more, reopened the closed conceptual world of mechanics. The mechanical universe which had been so fruitful in its technology and so certain in its theory was becoming unintelligible, and even contradictory, at the microphysical level of nature. As early as 1892, K. Pearson (1857-1936) could write that "step by step men of science are coming to recognize that mechanism is not at the bottom of phenomena, but is only the conceptual shorthand by aid of which they can briefly describe and resume phenomena."[3]

Hertz (1857-1894) continued in the direction of Maxwell and gradually took a similar stance. Instead of purporting to give the inherent essence of natural phenomena, scientific propositions are only as valid as the limited aspects of nature they attempt to describe. Thanks to Maxwell's research, the classical understanding of mechanical matter was being challenged by the newer concepts of fields of force. With Einstein's relativity theory, space and time lost their independence and absoluteness, for

"what was true for electical action could not be denied for gravitation. Everywhere Newton's actions-at-a-distance gave way to fields spreading with finite velocity."[4]

But the discovery that became the "basis of all twentieth century research in physics"[5] was Max Planck's (1857-1947) quantum theory where energy is released in discontinuous packets or quanta and not in a continuous stream as presumed. This discovery further upset the mechanistic view of the universe by undermining the latter's version of the continuity and uniformity of causally related events in nature.

Two more reports hastened the revolution. First, Niels Bohr's (1885-1962) theory of the atom in 1913 showed that the internal organization of matter was due to the presence of quanta.[6] Although his theory was later improved upon, scientific thinking about nature was moving past the determinate world of classical mechanics into the unknown region of indeterminacy.

The second event confronted head-on the inherited judgment that inner determinism of nature, in principle, permitted complete predictability. In 1927, Heisenberg showed that the kind of knowledge required for exact prediction—the simultaneous apprehension of position and velocity—as presumed in classical physics, was unavailable in the realm of microphysics.[7] The very instrumentation employed at the microphysical level of reality affected the object of measurement.

The rigid world of mechanistic certainty was progressing in its investigations of the atomic realm into a strange world where, simply put, the investigators cannot "observe the course of nature without disturbing it."[8]

The conception of the universe as an independent reality utterly separated from man and therefore objectively observable in an inevitable progress had been the Baconian inspiration for science. This ideal along with the Cartesian dichotomy between man and nature, the Galilean spectator, the detached mathematized version of the Laplacean world, were all receding at the atomic level before man as the participant-observer in the very processes of reality. Instead of being only the mechanically-minded spectator, measuring the external world, man's intervention to obtain information "creates, despite all the universal order of the world, a new, a unique, not fully predictable, situation."[9]

At the same time, scientists were deciding another issue regarding the ultimate constitution of matter, or, as it was now being called, energy. To explain certain phenomena, a corpuscularian or particle theory made sense; a different range of phenomena could best be served with a wave theory. Bohr applied to the same set of phenomena his principle of complimentarity—where both theories were valid and gave a complete explanation. Each theory could accommodate a range of data but both could not be applied to the same set of phenomena equally; neither could each one by itself explain enough. The two theories needed each other in alternative explanations with a certain "tolerance of ambiguity."[10]

With the realizations that the presumed objectivity of their predecessors was almost a dream, scientists began to revise their thinking about the restricted character of their knowleable world and their methodology. For some scientists, the impact of the dual or particle-wave relation-

ship of matter and Heisenburg's principle of indeterminacy forced a revision of the global reductionism of nature away from the deterministic model of classical mechanics. Whereas before even living organisms were subjected to efficient and material causes solely, the mechanization of life processes was now seen as an unwarranted extrapolation from the former success of classical physics. The realms of biology and psychology, in spite of the protestations of Huxley and Freud, are radically different levels of phenomena than the conduct of inert matter. In recognizing the necessity of making these important distinctions, scientists like Bohr pointed out that "there is set a fundamental limit to the analysis of the phenomena of life in terms of physical concepts, since the interference necessitated by an observation which would be as complete as possible from the point of view of the atomic theory would cause the death of the organism. In other words: the strict application of those concepts which are adapted to our description of inanimate nature might stand in a relationship of exclusion to the consideration of the laws of the phenomena of life."[11]

(2) The Cultural Contradictions of the Mechanized World

Along with the disturbing events occurring in the physical sciences, the reliance upon scientific objectivity and the belief in the undaunted beneficent future received an additional and mortal setback by the tragic occurrences of a world-wide war. The implicit shortcomings of the Newtonian worldview were present all the

time, but the circumstances apparently needed such paramount catastrophes as war, famine, unemployment, the rise of fascism and other negative experiences to show up the inadequacies of basing the meaning of culture upon a technological future. The shattering experience of World War I was the single most devastating argument against the optimism of the nineteenth century.

(3) The Secular Mood of Chance

The twentieth century felt the full consequences of its inherited belief in the optimism of the preceeding century. While we cannot pretend to cite all the factors responsible for the cultural and religious changes in our century, the loss of confidence in the Newtonian world-view produced by science's own investigations, and the human catastrophes taking place between nations and within society brought about a fundamental change in man's self-understanding. He no longer saw himself living in the midst of a rationally discernable, coherent order of nature, but a world of forces that could release untold damage and demolish the best of plans. Man could still believe in his personal ends and private purposes but these, like the larger context of his existence, were not subject to any overall consistency that could be relied upon in future years. Simply, there is no ultimate meaning to life. Evolutionary theory is more true than man thought at the beginning of this century: man is utterly finite. His thought and speech, if it is meaningful and intelligible, must confine itself to the immediate changing circumstances that he is in touch with. His values, projects

and knowledge are his choice within the limitations of the current trends and possible alterations that his pragmatic needs dictate. There is no sense of transcendence or of the sacred available to his experience of existence.

This lingering attitude, that one lived in a chance-filled universe without any ultimate meaning, had profound effects upon man's self-understanding. The explanatory power of chance as substituting itself for the ultimate interpretation of existence is vividly depicted in Bertrand Russell's summary of human existence: "Man is the product of causes which had no prevision of the end they were achieving; his origin, his growth, his hopes and fears, his loves and his beliefs, are but the outcome of accidental collocations of atoms . . . blind to good and evil, reckless of destruction, omnipotent matter rolls on its relentless way . . . . It is for Man, proudly defiant of the irresistible forces that tolerate for a moment his knowledge and his condemnation to sustain alone, a weary but unyielding, Atlas, the world that his own ideals have fashioned despite the trampling march of unconscious power."[12]

Russell's judgment here is more mythological than scientific. But this in no way lessens its validity of observation during those times. The secular reduction of life to chance is aptly formed by his words which cast the general feeling of human existence within a this-worldly context.

If this judgment is accurate, then it also receives additional help from the scientific logos. Bringing the distinction of being a Nobel prize winner, Professor Jacque Monod, molecular biologist and former Director of the Pasteur Institute, insists that the world's configurations

are the blind result of non-teleological forces. In his own Cartesian manner, he mentioned in a BBC broadcast that " . . . anything can be reduced to simple, obvious, mechanical interactions. The cell is a machine; the animal is a machine; man is a machine."[13]

While the disillusionment over the end of the Newtonian world and its inherent belief in humane progress came to an abrupt scepticism, it was now reinforced by the very science that had been its assurance of an unlimitedly, positive future. Monod's position is representative of many professional thinkers. His position would reduce biology to physics, the human person to instinct and conditioned behavior, and intelligence to machines—a position, in other words, that Russell already bequeathed to the twentieth century.

Yet Monod's preference for a certain mechanistic methodology that allows him to conclude to these statements with a universal conviction and sense of ultimacy contrasts with many other scientists. W. H. Thrope points out that Monod's understanding of scientific knowledge proposes to "replace religion, not only as a source of knowledge of the world, but also as a source of authority which determines the whole of man's being, even his innermost feelings and aspirations."[14] The core of modern man's religious consciousness is chance. Being familiar with the findings of quantum theory and relativity concepts, Monod's position is somewhat extraordinary in that, as Thrope continues, "physicists are implying that, fundamentally and in its totality, inanimate matter is not mechanical; whereas molecular biologists are saying that whenever matter is recognized as being alive, it is

completely mechanical (that is, it is reducible to a rather superficial nineteenth century type of physical chemistry)."[15]

It is this problem of chance as the ultimate explanation of existence, the essence of man and the destruction of teleology that requires our attention.

7

A Critique of Chance as the Ultimate Meaning of Reality

Monod's Position

In his *Chance and Necessity*, Jacques Monod proposes that nature's creative secret to success is the action of chance alone. There is no design anywhere in the universe, and random natural selection accounts for nature's variety.

He is quite adamant that chance alone is at the source of every innovation, of all creation: "pure chance, only chance, absolute but blind liberty, is at the very root of the prodigious edifice of evolution: this central notion of modern biology is no longer today an hypothesis among other possible or even conceivable ones. It is the *only* conceivable one, being compatible alone with the facts of observation and experience." He assures us that "nothing permits us to suppose (or to hope) that our ideas on this point need or even could be revised."[1]

In living organisms, genes are the fundamental units of biological heredity. They "tend to be stable elements, for the most part, capable of exact duplication in the process of reproduction."[2] Any alteration in the

genetic pool, for Monod, is entirely accidental. Random disturbances are the exclusive source for new modifications in the stability of species, which, in turn, reintegrate themselves in a new repository for hereditary endowment. The advances of progress that evolution seemingly indicates is not purposive, but the accidental result of blind materials and forces drifting together. Human nature is no exception. In fact the essence of human nature is nothing else but fortuitous chance. Like a player at Monte Carlo, man has emerged a winner by chance. Yet his accomplishments can hardly give him comfort or inspiration, since "man knows at last that he is alone in the indifferent immensity of the universe whence he has emerged by chance."[3]

The Crux of the Problem: the Case for Scientific Objectivity

The grandeur of Monod's position has not gone unnoticed among his peers. The organizational and hierarchical levels of molecule, cell, tissue, organ, organism, breeding population, species, are broadly accepted by scientists as factual realities rather than as arbitrary conveniences. These findings about the universe, especially in the organic realm, led Monod to interpret their origin, growth, and continuance to pure chance and mechanical necessity. These same classifications measured by Bragg, Swanson, Thrope, Bertalanffy, Haldane and others, indicate order, design, purpose and final causes.[4] The question is: how can the same objective evidence be competing for contradictory explanations?

Resolution to this serious question lies not in the organizational evidence. Broad agreement upon the facts is fairly well established among scientists. The difficulty may be traced to the interpretation, that is, the criteria for appraising the evidence. There are, for Monod as well as for other scientists, preferred criteria, definite and explicit presuppositions for scientific "objectivity."

In the early portion of his book, Monod explains his philosophy of science in a series of postulates. Nature, for Monod, is that which science describes. This description of natural phenomena is guided by certain criteria. Primary among these canons of methodology is the "postulate of objectivity" which permits the apprehension of knowledge in a scientific manner.[5] When applying the postulate of objectivity to the evidence of relative order and stability in nature, the teleologic dimension of nature never appears. The use of this postulate only leads back to chance as the fundamental explanation of nature.

The reason for this inevitable reduction is that the meaning of objectivity requires the "systematic denial that 'true' knowledge can be reached by interpreting phenomena in terms of final causes, that is, purpose."[6] Science is thus explained in a negative way and certain questions immediately arise. It may be considered advantageous to exclude data that cannot measure up to the criteria, but can one safely assume that all meaningful phenomena will accommodate this vision of science? Are there facts that may go unexplained because they cannot be circumscribed by objectivity? If the quest of science is the fair attempt to explicate reality, then to place restrictions upon itself before listening to nature's evidence

may minimize its findings. From the postulate itself, it does not necessarily follow that the structures of the evidence will oblige the rationality of a science completely determined beforehand. In this regard, it becomes highly questionable, to say the least, whether "objectivity" on these specific terms is truly commensurate with the intelligibility of the universe.[7]

Except for Monod's private use, his reduction of scientific objectivity to as much or as little as the denial of final causes cannot be used as the foundation, either in the past nor the present, for the entire scientific enterprise. If reality is the source of knowledge, then its multiple levels and dimensions reveal a depth and breadth, partially obtained by many sciences over the course of centuries, that does not seem equivalent to a negative principle of disclosure.

Part of the confusion here lies in Monod's misidentifying the sources of knowledge with its scientific justification, thus effectively narrowing the truth process, while keeping his non-purposive conclusions constant. Even here the postulate of objectivity is not broad enough to explain the remarkable stability of the universe amidst perturbulations. Instead of explaining it as teleology, he substitutes teleonomy. E. Boesiger mentions that Monod "ascribes to proteins almost a kind of teleonomic intelligence, permitting them an oriented, coherent and constructive activity."[8] Monod insists that objectivity obliges us to recognize the teleonomic dimension in living organisms. The teleonomic recognition of nature, however, does not follow, strictly speaking, from the postulate of objectivity, as Monod supposes, but only when organisms are

studied as living beings.

It would not be difficult to resolve Monod's epistemological contradiction. By his choosing not to uphold the alleged universality of the postulate of objectivity, the evolutionary patterns of living organisms could be better explained than by chance and necessity only. The word "choose" is his own undertaking. He informed his colleagues at an international conference that "epistemology is a normative endeavor," and before one constructs an epistemology "you must have made a choice of values."[9] Instead of choosing to make the postulate of objectivity "consubstantial with science," he could open the postulate to allow the structures and processes of the organic realm to speak, as it were, for themselves.[10]

In this way, the observer would be informed primarily by the power of the a posteriori feedback of reality. Scientific knowledge would preserve an understanding of the complexities of the universe, especially in the life systems, that include numerous relationships which cannot always be defined precisely nor mathematized, but which enable scientists to comprehend phenomena with more illumination than through a designated number of exact or measurable relationships. For it may well be the case that the valid explanation of the phenomena under investigation cannot meet the requirements of Monod's scientific rationality.

Whitehead was aware of this tendency among scientists to avoid certain problems by appealing to their methodology as vanquishing the difficulty. "You cannot limit a problem," he states, "by reason of a method of attack. The problem is to understand the operations of an

animal body. There is clear evidence that certain operations of certain animal bodies depend upon the foresight of an end and the purpose to attain it. It is no solution of the problem to ignore this evidence because other operations have been explained in terms of physical and chemical laws. The existence of a problem is not even acknowledged."[11]

Chance and Hierarchical Organization: the Recovery of Purpose

The association of chance with the universe is undeniable. Chance happenings abound. At the same time there is undeniable evidence for dynamic stability pervading the universe. Nature, it seems, is a combination of perdurance and fluidity. Impressive in its maintenance of dynamic equilibrium across broad expanses of inorganic and organic matter, nature in its proliferation and expansiveness allows for novel accidents in the random assertion of chance. These occurrences indicate a certain unpredictableness in nature's historical development. But to infer from the feature of unpredictableness that the entire universe is therefore the product of chance expands the fact of chance too much. To see chance as the leading exponent of nature is to obscure the orderly processes in nature that are seen in evidence even more than random spontaneity. To explain the factual breath of organizational hierarchy in nature by unbounded chance begs a great deal in the minds of some scientists.

Monod would prefer to understand man as a living machine and thus complete the explanation of his nature

in the chance result of the laws of physics and chemistry. The analogy between a man-made machine and man as a living machine can be useful in understanding certain levels of similar organization. But Monod overlooks a basic feature in the comparison. "If there is any problem," as Thrope points out, "in the organization of a computer, it is the unlikely constraints which, so to speak, harness these laws to perform highly specific and directive functions which have of course been built into the machine by the expertise of the designer. So of course the real problem of life is not that all the structures and molecules in the cell appear to comply with the known laws of physics and chemistry. The real mystery is the origin of the highly improbable constraints which harness these laws to fulfill particular functions. This is in fact the problem of hierarchical control."[12] Pattee concurs by insisting that "theoretical biology must face this problem as fundamental, since hierarchical control is the essential and distinguishing characteristic of life."[13] Chance is simply not an explanation for the various unitary continuities of patterns amidst their changes of details in the vast population of elements and composed entities.

J. Bronowski has the same problem as Monod in using chance to explain the emergence of complex entities: "There is therefore a peculiar irony in the vitalist claim that the progress of evolution from simple to complex cannot be the work of chance. On the contrary, as we see, exactly this is how chance works, and is constrained to work by its nature. The total potential of stability that is hidden in matter can only be evoked in steps, each higher layer resting on the layer below it. The stable

units that compose one layer are the raw material for random encounters which will produce higher configurations, some of which will chance to be stable. So long as there remains a potential of stability which has not become actual, there is no other way for chance to go. It is as if nature were shuffling a sticky pack of cards, and it is not surprising that they hold together in longer and longer runs."[14] Let us examine his remarks in light of what has already been said in view of hierarchical control.

Bronowski affirms the progress of the 'simple to complex'; he speaks of the 'potential of stability' that is 'hidden in matter'; he sees these potentials 'evoked in steps,' which implies an orderly procedure; he speaks of 'stable units' that are the material for 'higher configurations'; and he compares nature to a pack of 'sticky cards' which 'hold together' in 'longer and longer runs,' everything revealing 'how chance works.'

In his defense of chance, if he may be paraphrased, he cites plainly the nuances of order. If nature is essentially the outcome of chance then it is not consistent to presume chance responsible for stability, affinity, cohesion, interconnection, regularity and positive potentiality in nature. What Bronowski underscores about nature is that it has unrealized capacities to effect changes in a dependent sequence or steps resulting in modified or new stable forms arranged in a harmonious manner in the hierarchical biosphere—which setting, according to him, involves the entire structured process and is the inexorable result of pure chance. When nature performs consistently, doing what it is supposed to do repeatedly, he calls it chance. If this is the evidence for chance, what is order? His

reasoning simply equivocates chance for the evidence of order. Since he admits that the primitive building blocks of nature have the 'potential of stability' then the proper actualization of that potential produces, in common language, specific actions which are 'designed for' specific purposes. His semantics cannot avoid evidence of order.

To broaden the implications of making chance the ultimate explanation of the universe, let it be pointed out that if there is a dependable order among the events or beings that make up the world, why make that order difficult to understand by postulating factors and forces that presumably are completely independent of each other? A chance view, given pluralistic presuppositions, makes order itself a constant anomaly.

Among the critics of Monod, mentioned above, recognition is increasing for appreciating the orderly and purposeful dimensions in nature, especially in regard to organic structure and behavior. Mechanistic explanations are being trimmed to modest proportions. H.G.Wolff mentions that in this century "the revolt in physics against the Cartesian concept of a mechanical universe raised doubts about the ideal model for science imposed by physics. Far from being disrupting, this change made it easier for many biologists to admit into the study of the form and function of parts of living systems their purpose in relation to the goals of the living organisms and to accept the thesis that biological concepts can emerge from a study of integrated systems in which new and different relations between creature and setting engender new and different behavior patterns."[15]

The study of organisms shows that they manifest

complex hierarchies of levels of organization and behavior, including integrating many systems. In man, for example, there is simultaneous integration of the metabolic, nervous, glandular, etc. systems. In fact, the overall performance of the organism completely exceeds the expectation at its chemical level. J. H. Woodger indicated this undeniable feature of living beings when, in 1929 he wrote: "Suppose the iron has the form of a poker or a padlock, then although the iron is still chemically analyzable in the same way as before, it cannot be fully described in terms of chemical concepts. It now has an organization above the chemical level. In the same way an organism is a physical entity in the sense that it is one of the things we become aware of by means of the senses, and it is a chemical entity in the sense that it is capable of chemical analysis just as is the case with any other physical entity, but it does not at all follow from this that it can be fully and satisfactorily described in chemical terms."[16] The higher level phenomena exhibited by the whole entity on a sufficiently regular basis could not be obtainable if randomness pervaded the entire structure. Equally, a mechanistic analysis of the organism would have to neglect the larger activities of the unit in question, including the phenomena of organization.

Monod assumes that all the laws of nature, including the field of biology and neurology, which cover all the facts of life and mind, follow from one basic mechanical and rational system. His position means that, at the human level, values are impossible, that wholes become a crowd of random aggregates not organizations, measured only by statistical laws, and that real development and

emergence of novelty is likewise impossible. For Monod, the parts of an entity are more ultimate and more real than the entity itself. To assume a reduction to the atomic level one has to overlook the evidence of properties and behavior that experience shows is irreducible to simpler elements. Bertalanffy writes that the "biological order is specific and surpasses the laws applying in the inanimate world, but we can progressively approach it with continued research. It calls for investigation at all levels: at the biological level of the cell and the multicellular organism; at the level of supra-individual units of life. At each of these levels we see new properties and new law."[17]

The multi-leveled approach to the topic is not an arbitrary preference of biologists but an exigency derived from a careful investigation of the subject matter. The interdependence of levels, the intrinsic directiveness of processes, the functional relations of parts of a living system to the whole, the fluid architectural composition, the constancy of activity and the wholeness of development are together some of the major features that enable biologists to admit that vital processes cannot be otherwise explained than by telic means and ends. "Such teleology," according to E. W. Sinnott, "far from being unscientific, is implicit in the very nature of organism. The biologist need not shudder at these words, for purposiveness of this sort is not only unobjectionable in his science but lies at the very heart of life itself."[18] Even when scientists may resist the above words, they cannot help but see the irony in Whitehead's remark that "scientists animated by the purpose of proving that they are purposeless constitute an interesting subject for study."[19]

Teleology Revisited

In retrospect, the teleological interpretation of nature, with its empirical methodology of searching for physical causes, was never disproved. From the sixteenth century onward teleology was gradually ignored in the flush of exciting possibilities provoked by equating knowledge with power over the forces of nature. By viewing the world as a machine, one can deploy quantitative methods which can avoid nature's evidence for vital purposes. It is more a choice, a preferential treatment toward the subject matter that falls under investigation. A machine is functional and deterministic, objectively and uniformly certain in its operations.

From the seventeenth century the investigation of nature assumed these manageable proportions. A mechanistic perspective can overlook vital purposes. The regularity of natural processes, instead of being discerned in their purposeful nexus, can be interpreted as uniformly operating forces, measured by and translated into mathematical symbols with a reliable margin of predictable results capable of empirical verification. Since the laws of a machine are externally imposed (no machine can choose its own design), it would not seem illogical to think that nature is equally deterministic. Thus, for Descartes, animals are machines; for Hobbes, consciousness and society are machines; for La Mettrie, the human body is a machine; and in our times, from Pavlov to Skinner, among the behaviorists, human behavior is machinelike.

As already pointed out, the reduction of the multivaried strata of nature to a mechanical model does not

mean that nature is a machine, because nature is primarily organistic and not a series of aggregate parts. Even though the organism as physical body will exhibit the same general characteristics as do other aggregate bodies of matter, there are special activities pertaining to organic bodies that upon scrutiny will efface almost entirely their material identifications.

The key activity that differentiates an organ from an aggregate is metabolism. Here we are not speaking of a mechanical exchange between the organ and its environment, where part is received and the organ makes room for its new presence by pushing other parts away. When a living body is considered a metabolizing system, then the reception of parts from the outside is a constant becoming of the so-called machine itself, which becoming in turn is a performance of the machine. There is no analogue for this biological phenomenon in the world of machines.

A mechanical perspective or a mathematical description can only deal with dynamic wholes in nature by abstracting from the more immediate identities of the total substrate. Instead of allowing consciousness to be allied to the inseparable persistence of the life process with its various forms, there is delineated a quantitative form that measures the remaining affinities within the substrate. In its performance, the mechanistic and mathematical approach can be indifferent in its univocity to teleological evidence. This homogeneous abstractive view misses the whole point in reality—life itself. At best, the mechanist or the follower of the chance theory of life can see only a relative perserverance of an aggregation, reducible to the immediate identities of its parts.

This viewpoint is completely incapable of apprehending systems of matter that are unities of a manifold indicating a wholeness of self-integration, where form is the cause rather than the result of a material collection. Man as the most complex of organic forms continues to exist as an active self-integration of life which gives substance to him as a living, meaningful being. This active integration of his surroundings comes back to him as various categories of teleology, such as his efforts at art, recreation, business occupations, involvement in social problems and like activities wherein he knows the meaning of his actions and himself through the finality of their performance.

Even at the mundane but essential level of biological survival, teleological implications are in evidence. Human life being a continuous achievement retains still a certain freedom over its material dependencies even in the act of assimilating them. Whatever the human entity incorporates into its various systems never remains the same as it was in its previous formal structure. If it is accepted by these systems, then it is transformed into a different order, completely unpredictable from its former functional capacities. A soybean, for example, could never be suspected of becoming, say, the living protein of a muscle. The dynamic identity of a living form, such as man, uses the material contents of its environment for the successive phases of its growth and self-continuation. This process gives a new teleology to matter itself. Thus, our metabolic continuity with matter is predicated upon something more than its own activity, for it is related in its continuity as part of the process of self-continuation in

consciousness. A certain polarity exists between man and the world, for in preserving his internal identity, his continuity in self-consciousness exercises a finality other than the exigencies of the organic realm of his being. While taking into account the ends of his organic nature, man still exerts a freedom over his corporeal being which includes purposes and meanings that defy the equalizing forces of physical homogeneity. Man's self-consciousness gives him a sovereignty of possibilities more than the sufficiency of mere matter in its transitory potentials.

The unraveling of the physio-chemical analysis of life brings only the evidence of inorganic or lifeless parts. But his scientific act of analysis is an act of life made by a living scientist. Even the preference of Professor Monod and others to posit the denial of teleology for the integrity of scientific procedures is not the direct and immediate inference from the data investigated by the scientists, but a choice. It is a living act of self-consciousness, which for the sake of their personal purposes excludes the possibility of discerning the evidence in a certain way. The dismissal of teleological categories for the sake of scientific objectivity is an act of intentional purpose freely admitted by its subscribers.

Since science admits a correlation between its viewpoint and the dimension or realm taken under study by that viewpoint, then a successful enclosure of a level or aspect of reality cannot logically expand its presumption by stating on that basis that other approaches or viewpoints are trivial. Bolen remarks that the scientific viewpoint "requires on the part of the scientist a quantifying and abstractive attitude by means of which he

disengages himself from the qualitative concreteness of his everyday world and constitutes the abstract network of mathematical and functional relationships of his scientific world. The scientific way of being-in-the-world, therefore, or the "attitude" of the positive scientist determines the objectifying, abstractive, limiting and quantifying characteristics of the "methods" of the positive sciences."[20]

By the nature of its logic, scientific objectivity cannot be the comprehensive tool for understanding reality, for it admits by its attitude and methodology the decision not to be bound by the differentiated self-manifestation of being. Thus, scientific objectivity's insistence upon its own mathematical-empirical approach makes it less rigorous in its thinking than it supposes. The attempt to equate scientific thinking with the essence of rational discourse as the standard of consciousness, exposes this immediate flaw. The exactness of mathematical abstraction is not commensurate with the immediate heterogeneous features of reality. If human knowledge requires a strict attention to the exact aspects and characteristics of reality, then the exact methods of scientific precision are not strenuous enough to minister to the wholeness of being. The special construction of these methods lacks the versatility to contact the various dimensions or evidences of reality.

Scientific Rationality Reexamined

This criticism does not imperil scientific rationality. Nature obviously can yeild knowledge by its methods. But the attempt to hypostatize these methods, to perpetrate

them as the ultimate norm of scientific meaning becomes unscientific. The overidentification of scientific objectivity with mathematical intelligibility forces the experience of a lived contradiction. The exclusive universality of this position may be held but its credibility is unascertainable by experimental verification. Thus it is scientifically untenable. Also to deny the status of true knowledge to those disciplines and methods that do not match the exact requirements of mathematical precision is to confuse a contrary with a contradictory episode. The criterion for scientific authenticity in all fairness to the richly varied objectivity of the world must include pluralistic approaches in order to deal intelligently with the manifold of being.

When science seriously attempts to understand the world, then it may have to widen its mechanical conformity to its current paradigm of scientific rationality in order to explicate those aspects of phenomena which partake in the total disclosure of reality.

In this regard, H. Skolimowski points out "that concepts, like tools, must be suitable for the task, and that we hinder our task from the start when we try to render dynamic processes through static concepts; . . . that growth concepts, which explain or attempt to account for qualitative changes, are not less rational than physical concepts; . . . that the transformation of life into hierarchically more and more complex forms is not less a fact (but perhaps more) than the existence of electrons; . . . that the function of rationality is to illuminate and not to obscure, and that the compassionate understanding, if it leads to illumination, is perfectly rational, for rationality

is to be judged not by a priori procedures but by the outcome of the rational process."[21] Scientists, especially in the biological field, are noticing that although we have physical, chemical, mathematical and other concepts describing the properties of matter, their usefulness must not preclude the articulation of higher levels of living matter by concepts which befit the adequate explanation of the reality.[22]

If science bears an intellectual responsibility to the experiential facts, data and evidences of reality, then it does not seem unreasonable nor unscientific to allow the correlation between knowing and being to be expressed in concepts that reflect this substantial unity. In this case, for example, "growth concepts will allow us to describe without distortion living phenomena in the process of change, particularly in the process of qualitative change. Normative concepts will allow us to describe without mystification living entities guided by specific values and directed to specific goals."[23] Man in his self-understanding as *homo symbolicus* embodies activities and properties over and above the physico-chemical properties of matter. A scientific analysis of any major organ of the human body, say the eye, would be ultimately meaningless without relating the results to the living act of seeing. The structure and behavior of organism is not alternative or chance preference in description. Mechanical factors, as explained before, cannot establish organic modes of being. The creativeness of science requires an intellectual fidelity to the differentiated manifestation of being, and, based on this common and universal experience, the scientific enterprise demands

pluralistic and complimentary interpretations.

If scientific rationality continues to ignore its own limitations, then it exposes itself as a self-destructive attitude without a genuine future. If man and the world are nothing but chance products, then thought and reality are not related in any substantive way. Thought itself is reduced to unpredictable contingency making both subjective and objective knowledge a meaningless collage. Scientific thought loses its identity with itself and forfeits its truth value. When science refuses to acknowledge the presence of teleology in reality, then it loses its own justification for meaningfulness, and involves itself in an endless series of contradictions. If it admits a certain perseverance of natural entities to retain structure and recognizable behavior, then it articulates this performance by calling upon the primitive to account for the more complicated, the unstable for the stable, disorder and chance for becoming and being.

It does no good for chance to be associated with the concept of the world as a machine. The strict implication of mechanistic causality is a finalistic concept, even though the final cause, its teleological import, may not be discernable empirically. The condition for its operation demands an antecedent design in an agent outside its boundaries. If chance were really the foundation of reality then science's attempt to promote itself, to advance over its mistakes and pioneer new discoveries could never take place within culture. Chance eliminates any consistent attitude from exerting its unified presence. The implications of chance as the fundamental explanation of reality forces science to call attention to its achievements by

eliminating itself. If science constantly tries to explain its progress upon the basis of chance, then ultimately it leaves its account of rationality incomplete. It asserts of the sufficiency of chance an accountability that chance in its unintelligibility cannot sustain. By refusing to examine the evidence for teleology, science denies to its thinking a basis of possible validation in a consciousness determined by the thoughtless. Heralding chance, scientists must declare all scientists illusionists.

When we reflect upon this modern development in science, which refuses to examine the evidence for teleology, this scientific refusal, in the light of the history of teleology, reveals a mythological problem rather than a scientific one. All the more is this assessment of crucial importance since the issue involved positions itself in terms of ultimacy. From the viewpoint of religious consciousness, we are dealing here with a religious crisis, and so man is forced by these circumstances to search anew for another explanation.

The Religious Crisis

The crucial issue is not the intrinsic worth of these inventions as much as it is the cultural and religious consequences of the scientific and technocratic attitude that minimizes the possibilities of fuller human insight into reality other than the inventive manipulation of matter. When important human concerns and questions of personal survival are opposed or nullified, a priori, as being insignificant because they are unsubmitable to quantitative criteria, then the accelerated implimentation of ever new

mechanistic policies and systems of technological control supplies its own grand illusion. The elimination of human misery and fulfillment of human authenticity are predicated upon the supremacy of scientific rationality and automated abundance.

This extreme portrait of a surfeited culture that doubts the humanistic dimensions of life, the organistic features of nature, and the symbolism of transcendence is consistent with the logic of scientific objectivity in its precluding the possibility for discerning purpose and final causes in reality. Scientific rationality informs the human community that its security in the everyday world of solid realities, the Newtonian deterministic world, is only an appearance, for at bottom, things are the uncontrollable pressure of sheer random formation. Geroge Santayana captured man's modern sense of contingency when he said that "matter is the invisible wind which, sweeping for no reason over the field of essences, raises some of them into a cloud of dust: and that whirlwind we call existence."[24] On these terms, thought cannot proceed further beyond the empirical surface to clarify the depth of reality.

Whence is the ultimate coherence to life? Reality is without essence. That is, in its depths there is no intelligibility, no structure of meaning, only the empirical strata that randomly alters through time and space with occasional manipulation by man. Since man possesses no nature, there can be no ordered set of dynamisms out of which he might act with purpose and coherence. As it is with him, so it is with the world—both are the unrehearsed, temporary products of unpredictable chance.

The implications for religion are similar. In the Hellenistic and Medieval periods, the Age of Teleology, man's sense of contingency—like the occurrence of chance episodes in nature--were understood against an ultimate frame of reference. In a changing but fundamentally ordered world, contingency and chance pointed beyond themselves to a necessary and ultimately divine reality. In the context of a causal universe, the cosmos, the temporal and transigent structures of existence always depended upon the permanent and the eternal. Modern man's sense of contingency is just the opposite. His acceptance of the scientific denial of purpose in nature and his loss of continuity in the historical progress of evolution have drained religious symbols of their meaningfulness and validity. Man deals with a contingent universe where "necessity is a conspiracy of accidents."[25]

Religions emerge within distinct phases of history. They are the time-bound products of the same flux of existence that touches everything. Important and relevant, to be sure, are the scriptures, beliefs and rites that inscribe the credentials for the particular culture that interrelates with these symbols. But, in view of its historicalness, they become less engaging for us today as we move into a changing future. Since chance is at the core of reality, man lives in a plural world of finite connections and temporal entities whose transiency makes it impossible to locate any concrete, sacral evidences indicating universal and ultimate significance. Huston Smith remarks that "in religion modernity demythologizes tradition to accommodate it to its one-story universe; if "God" in principle requires more exalted quarters, the nonexistence of such

quarters entails his nonexistence as well."[26] The concept of divinity, like that of purpose in nature, becomes an unreal and empty symbol of transcendence, merely an unnegotiable relic of past language.

This objective evaluation is not offered as one hypothesis among others, nor as only a mode of thought; rather, it esteems itself a totality, nothing less than the most progressive state of consciousness available to man's evolution. Professor Monod and others have proclaimed scientific objectivity in triumphal opposition to teleological categories and symbols of transcendence, and thus have turned their intellectual stance into a religious issue with cultural import. Their worldview affirms a single, empirical ontology, exhibiting chance and endless change as the final meaning of existence. Modern man, then, must come to terms, sooner or later, with this comprehensive paradigm of meaning, not only in the area of industry and commerce where it prevails, but especially in the context of self-definition where it affects.

Part Two

Nature and Ultimacy as Correlates of Religious Consciousness

8

Preliminary Remarks

From our investigation in Part One, certain patterns of interest have emerged in man's ongoing history. The study of his attempt to interpret the world to himself shows that he has deployed various categories of thought for this task. These ways of speaking and classifying reality can fall within a generalized perspective that at times allows our investigation to detect a unified coherence in the questions and answers. Man uses a certain plane of approach in deciphering reality. One can speak here of deploying a modality of consciousness to interpret nature and himself.

Different periods of history have been shaped and dominated by these various modalities. Each, in its way, has given direction to man's ceaseless pursuit of the meaning of existence. Each has had far-reaching effects both individually and collectively, and none has been jettisoned by history except in its particular formation which can be associated with a definite period or epoch of Western history. These modalities may be described in terms of myth, philosophy, theology and science. Together they form a scale or series of levels of interpretation. In his use

of any one of them, man has attempted to perpetrate this use and importance on a grand scale. History is replete with the human endeavor to prolong a preferred modality. This preference has to be taken into consideration when discussing the various subjects that pertain to any one of them.

The Teleological Constitution of Consciousness

The persistent presence in man of the pursuit of meaning shows its nature to be of a dynamic character. Moreover, meaning reveals itself within the symbols of the presiding modality of consciousness. In fact, all the modalities, as history shows, reveal, even in their relative autonomy, a basic, operational thrust toward completion. Man senses his incompleteness and generates the desire for its alleviation. He feels, thinks and acts in ways to bring about the objective completion that he lacks. Smoothly performed or otherwise, successful in its accomplishment or a failure, the dynamism of the enterprise bespeaks a teleological process. The quest and the questions that man puts to himself about reality within a designated perspective or plane of approach reveal both a specific and an overall directional finality. In other words, the teleological dynamism of consciousness pervades the heuristic structure of inquiry and reflection. Human consciousness reveals a teleological constitution.

The teleological nature of consciousness is not rigid. It reveals upon critical examination a flexibility that pervades the natural polymorphic patterns of conscious experience. Man can grasp and express his awareness of

being at different levels. These levels of awareness are the various modalities—from myth and philosophy to the aesthetic and practical—that comprise the human experience of cognitional meaning. Upon reflection, one can discern that these levels or designated modalities have their own criteria for verifying the authenticity of their intellectual experience. A myth, for example, is not a scientific proposition about nature, although the reverse could be true. The Newtonian worldview was essentially proposed upon a scientific basis. But its impact upon the culture and historical era that accepted it expanded its value into a cultural totality—a full-blown myth arose for modern man.

Human consciousness in its teleological dynamism includes, then, a natural and historically-grounded polymorphic presence. But its presence includes something further. The dynamic pursuit of meaning obtainable upon these various and elicited levels or modalities of awareness possess a definite affinity with the concrete universe of being. Between consciousness and being resides an isomorphic relationship. In other words, consciousness is able to conform to the intelligible order and dynamism of the manifold universe. Man can proceed in his investigation of being deploying a modality of consciousness that can be substituted for another, each patterning human experience according to its own perspective. None of these modalities, however, can exhaust the intrinsic possibilities of awareness, for each has its own borders and criteria that limit its applicability to the plenitude of being.

Man's knowing is in process—to elicit further insights

by asking questions, resolving them, raising additional questions to elicit further insight. It is not a chance affair, randomly composed and executed, but a directed dynamism that does not deny the possibilities of opposition, mistakes and failures. These occurrences also belong to the heuristic and progressive character of consciousness. They serve to remind man to be more careful in determining adequate criteria for intelligible and humane survival. Thus, teleology emerges as the law of consciousness and the myth of nature, for it describes the dynamic aspect of their being.

Our brief study of some of the more prominent modalities of consciousness shows that different cultural eras have attempted to expand their normal borders of meaning by using one modality as the exclusive means for discovering and expressing the ultimate meaning of reality. Undoubtedly, it has worked for a while. But by doing so, it also turned into a myth by which the age recognized itself. Its cultural ascendency reaches such a stature that it is accepted as the last word, even for human existence.

The Demands of Religious Consciousness

Right or wrong, through the use of the modalities of consciousness, man has shown an overriding concern to search out the final meaning of existence—not just in a general way but as concretely as possible. Again, the culture associated with this effort generally indicates, by the contours of its life community, the values, habits and customs that are implied by its acceptance. Being the bearer of this recurring phenomenon, man tends to unify

his life around the ultimate meaning of his choice, which may or may not agree with conventional society.

Also within this search or quest for ultimacy, one can detect a reciprocal correlation between man's investigation of nature, ultimacy and self-knowledge. The questions and cultural expression of these areas of interest seem to reflect mutually upon one another. The more he understands about any one of these areas, the more his understanding affects his conceptions of the others as well. This pattern of interpretation can be seen in every major period of Western cultural history. Nor should this dynamic effort be surprising, since consciousness prefers to know things in terms of unities and wholes as much as it can. Thus man's experience of being produces the gathering and the testing of facts and theories which in turn mount into the accumulation of insights and higher viewpoints that can guide him, both in his immediate and long range goals.

The Tension of Our Modern Age

Modern man has once again entered a crossroads in consciousness. The undisclosed failures of the nineteenth century have been visited upon the children of this era. Their arrival, however, has been more cataclysmic than any dire prediction could have anticipated. Man seems to be bereft of all substantial meaning in a world of chance collisions. And for a better interpretation, he still clings to the one-dimensional worldview, fostered by his scientific and technological awareness. Let us now examine its contours and see why it refuses to allow the

legitimatization of religious consciousness, before attempting to show that ultimacy and transcendence are still possible in our era.

The Myth of Scientific Rationality

Today, man's undaunted reliance upon his reasoning faculty (*ratio*, discursiveness) virtually identified with scientific objectivity, has nourished for more than three hundred years a continuing tradition of knowing reality. Reason assumes that its vision of ultimacy has to be synonymous with the scientific efforts of its discursive modality of consciousness. For many, it has led mankind to the dead-end of chance as the most representative interpretation of life.

Scientific knowledge over these centuries has depended essentially upon mechanistic categories and methods of inquiry, along with its pragmatic extension, technology. Together, these events have fused themselves as the dominant myth for our era, giving direction and purpose to the impulse for progress and development. This twofold ideal symbolizes the central values of modern culture, with all its limitations and deficiencies.

The modern, mechanized culture is not only the product of scientific reason but, as a symbol of ultimacy, encourages an habituated way of evaluating life. Scientific thinking and its industrialized projects define the most legitimate field for human reflection, and thus stimulate the motivational center of man. Since a culture tends to see only what can be incorporated into its established frame of reference, the mechanistic elaboration of life's

options is taken as the whole or predominant way to interpret reality. In upholding its approved propositions, the scientific community hardly avoids a set of attitudes that enters into its scientific cogitation, but are not necessarily implied by its so-called objective receptivity to nature's intelligibility. H. K. Schilling remarks that the scientific community "has its own ideals and characteristic way of life; its own standards, mores, conventions, signs and symbols, language and jargon, professional ethics, sanctions and controls, authority, institutions and organizations, publications; its own creeds and beliefs, orthodoxies and heresies—and effective ways of dealing with the latter. This community is affected, as are other communities, by the usual vagaries, adequacies, and shortcomings of human beings. It has its politics, its pulling and hauling, its pressure groups; its differeing schools of thought, its divisions and schisms; its personal loyalties and animosities, jealousies, hatreds, and rallying cries; its fads and fashions."[1] Given the temper of a given community of scientists, valid but unorthodox views may be rejected or ignored simply because the data of human experience does not fit into the currently acceptable explanatory paradigm. The enormous presumption of scientific rationality is that it alone can shed the most intelligible light upon the meaning of existence.[2]

But as current history recalls, the cultural structures and policies founded upon mechanistic meanings are susceptible to erosion. When the conditions for human fulfillment under the present cultural expectations begin showing their aging limits, society suffers from what it feels are unfair boundaries, impinging upon the rights of

its self-expression. It soon recalls technological research to invent newer models of rescue.

The expected reliance upon the new variation of the old familiar theme of scientific progress to extinguish the ills of man has iteself become progressively weakened in its humanizing hope since World War I. Even though these newer remedies of invention may statistically reduce the incidence of certain mechanical afflictions in society, their insertion into the dynamic complexities of society produces equally new strains and pressures in other segments of the cultural complex.

When programmed systems of technological expediency discard humane purpose and design, then the human suffering occasioned by a technological failure is only a temporary inconvenience until a better invention can replace the older model. This type of improvement presumes that developing technological auxiliaries can be engineered to relieve human pain in all its forms. Scientific rationality will ever correct the unexpected limitations of its cool intelligence.

A strange teleology evolves. In an expanding mechanistic culture, each generation would live from one technological reprieve to the next. Mumford remarks that "to many credulous people, this whole prospect seems entrancing: indeed irresistible. Like those who have become helplessly addicted to cigarettes, they are now so committed to technological 'progress,' that they ignore the actual threat to their health, their mental development, or their freedom. Already a life that calls for assuming personal responsibility and exerting personal effort seems to them a utopian unreality, not, as it actually is, the

the normal state of all living organisms, one reaching a climax of conscious purpose in man."[3]

Technological Progress: Reality and Illusion

To sustain his dignity while justifying the technological treatment of natural resources and the expenditure of human energies, Western man has opted for a quantitative usefulness in producing the modern degree of cultural prosperity. His vision of himself has changed from the medieval insistence of a rigidly defined social and static worldview to the dynamic optimism and experimental modes of contemporary living. By his discursive ingenuity, modern man has been exceeding the cultural limitations of the past generations. By enlarging the abundance of technological advantages to overcome the universal problem of human privation and disparity, the successful termination of this dreadful recurrence would seem to be looming upon the modern horizon.

Forced by history to inherit the practical consequences of scientific rationality, man finds himself in a strange predicament. The concrete betterment of passing decades has not always been an edifying episode for everyone. The echo of recorded history narrates that howsoever modern man has enjoyed his newly civilized status, the improved standard of living eventually suffered a painful obsolescence. As society continued to objectify its cultural desires, each generation repeatedly found the lingering benefits from the past improvements still too restrictive for their taste. However well instigated were the latest programs for emancipation from the past,

history demonstrates that as each cultural advance stabilized, it soon spawned its own version of oppressiveness.

Ironically, man finds himself cramped, manipulated, even devasted, by the very tools of liberation. The scientific enlightenment has brought him from the so called "dark ages" to the present level of civilization, and its success has also replaced medieval constrictions with modern ones. Planned obsolescence is one thing. But as exposed in our recent ecological sensitivity, the industrial-technological worldview enforces a way of progress that supports its own disintegration. The planetary life-forces presupposed by every segment of culture are being mortally threatened by scientific objectivity in its misapplication of technological progress.

Actually the belief in Progress had been seriously undermined by the experience of World War I, with its unabated social and political upheavals lingering afterwards. The naive belief in the inevitableness of historical progress was devastated. Evolutionary history as its own court of judgment could not be reconciled to the opposing facts of those years. One cannot accept this tragedy simply as a phase in some larger tendency of history. Instead one investigates for mistaken choices, misunderstood incidents, and a host of critical factors involved in this disasterous affair that could explain what choices may have been avoided. The doctrine of Progress loses its appeal as a single developmental process in which each phase plays a mechanical role, subservient to the whole.

In other words, the widespread intensity of the nineteenth century's conviction about Progress could no longer be confirmed by the twentieth century's experiences

that contrasted so vividly with this inherited supposition. Disowned from the stable promise of historical improvement, twentieth century man began to feel his historical contingency and temporality.

Replacing the standard of culture with concrete improvement gives hope to human progress. Nature and the universe are yielding their secrets to research. In so doing, modernity has banked on the faculty of reason, the logos as colored by scientific rationality, for the displacement of cultural deficiencies and the upgrading of human standards of living. Yet in our time we have become more critically aware that the latent tensions within culture, the restive feelings of antagonism that eventuate from the scientifically based, industrially supportive technology, recur with every succeeding advance.

This inexorable pressure of survival brings man to the brink of existence where he must search anew for the meaning of life. To look upon himself as a chance entity in a random world of energy changes is becoming less creditable in the eyes of science's future. Yet even where man enjoys a freedom from Monod's version of reality, the challenge of searching for ultimate meaning leaves him puzzled in his newly-found autonomy. Even where science resists the one-dimensional viewpoint of its rationality, still at the everyday level of man's cultural pursuits, there remains a sense of scepticism about the future. This situation is not unexpected considering the amount of confidence that the myth of modernity generated in the minds of people. Once again we seem caught up in the problem of ultimate meaning.

As examined in Part One, man passes through

various determinations of ultimacy, using various modalities and paradigms of reason. Even where these historical determinations or epochs have opposed one another, their configuration and dynamism continue to reveal a teleological unity embedded in man's quest for self-understanding. Even the failure of any particular epoch, say the medieval stance or the Newtonian worldview, have contributed to the dialectical progress of the quest by pointing out the insurpassable limitations of attempting it within the confines of reason alone.

To preserve this quest from overidentifying with the limited but necessary paradigms of meaning, man needs to return to the mythic presentation of experiential symbols that exceed the modalities of scientific rationality and yet are inviting enough for him to recognize that his participation in them affords the self-verification of the quest. As the history of teleology and the history of the cultural and scientific paradigms have shown, the pursuit of ultimate meaning is unrestrictive in its demands for man's self-realization. This quest continually implies a teleological construction to its presence.

This problem of the teleological fulfillment of ultimacy or religious consciousness is taken up in Part Two in order to remove its possibility for actualization from the status of mere fantasy; that there are clues today to help man achieve his natural and unrestricted desire to find ultimacy.

9

The Ambiguity of Secular Autonomy

The paradox and drama today amidst the superabundance provided by Western technocratic attitudes is man's profound scepticism in achieving this level of autonomy over the forces of nature. He senses his existence almost totally within a contingent, relative and temporal context. The confusion and anxiety about the future occasioned by his allegiance to the finality of scientific rationality as the basis of culture has left him spiritually bankrupt. The aftermath of his belief in Progress shattered by the social and moral catastrophes of these decades has left man with the feeling that there is no ultimate coherence or eternal order to life. Human existence seems essentially fragmented. The transience of life competes more easily and strongly, twentieth century social history being what it has been, with the traditional religious systems of transcendence, bluntly challenging their authenticity in light of human experience.

The tenuous meaning that man ascribes to his being seems derived from his situation in history, evolving, according to evolutionary theory, as a series of chance—cultural patterns accidentally succeeding each other in time. The hallmark of life on these terms would be the

successful adaptation to any one period of relative flux. But his freedom to select an ideal and work towards its completion would be illusory, for human progress becomes indifferent to its accomplishments. To what avail are teleological symbols of transcendence or even one's private meanings and purposes, for that matter, "in the knowledge that no power in the cosmos will ultimately sustain or validate them."[1] Man's scientific and technological sufficiency have replaced the former symbolic and mythical referents to dimensions of sacrality and transcendence, allowing him to be basically on his own, creating out of the finite relativities of his experience those limited purposes that guide his temporal existence. At stake is the meaning of man's ontological relatedness to being—the place, meaning and formation of religious consciousness.

A Recurrent Protest

While the secular and sceptical mood prevails, it is nevertheless still true that each generation raises the possibility for ultimate questions. From the protests in the market place to the final puzzle of death, men do wonder whence their origin, the significance of life, their mortal destiny. The fact that scientific objectivity has rendered the religious symbols of ultimate concern inoperative, especially at the professional levels of cultural life, is entirely irrelevant to their crucial function, which is to symbolize man's acute feelings and thoughts about the crises of existence. The joyful or despairing conditions of life provoke occasional pauses about its limits

and resistances. J. Wild remarks that "to reflect upon these boundaries seriously is to raise the ultimate questions of our existence. The way we face them reveals the kind of being we are, for the way a finite being holds itself with respect to its ultimate limits is the very core of that being. . . . But to be aware belongs to the being of man. Hence, to become evasive or confused about these limits is to confuse our existence at its very core."[2]

Along with man's confusion is a concerted effort to challenge the limits that scientific rationality places upon man's self-understanding in a finite world apparently without purpose. In spite of technological improvement during the decades of this century alone, man has become less inclined, because of their tragic misapplications and unforseen dire consequences, to continue equating mechanical developments with moral and social progress. History has shown that inventive ingenuity does not necessarily correspond to humane improvement.

Moreover, there are new teleological and holistic concepts and trends coming from the human community that are pressuring for the revision of the meaning of scientific objectivity. Concurrently, questions of meaningful survival and humanistic significance are being raised and responded to in larger dimensions of society, critically reflecting the growing attitude that technological improvement has to account for itself beyond its novel appearance or its intruding commercial gratification in society. The human community as a whole is beginning to realize that human survival demands more than technological expertise. Equally important is society's rising protest that man's internal world of self-understanding

and the preservation of the universe involves multiple symbol systems acknowledging both subjective and objective dimensions of reality that cannot be absorbed, molded or reduced to the paradigm of scientific rationality. For a technocratic society that denies a profound value or existence to subjective life forfeits any human value to its own highest products. To be consistent, man the knower and maker cannot eliminate his own subjectivity without eliminating himself and those dimensions of the world that his creative and scientific mentality takes as their object of study.

The Quest for Ultimacy

If the impulse for ultimate meaning is not only a subjective creation but a real potential for human nature, then its possibility for completion must be grounded in the actual world that confronts man today. Moreover, ultimacy must possess a transcendental core or essence, for otherwise one cannot escape the transitory and arbitrary sense of existence that befalls modern living. Somehow the clues to ultimacy must be found within culture, and yet man must find their full expression beyond the limits of cultural existence. Man's freedom must be more than the random opportunity to displace obsolete social structures; rather it must be the opportunity for finding those orderly criteria that engenders the experience of transcendence. Otherwise human freedom is a charade, played out in endless variation, fulfilling Professor Monod's stagnant destiny for mankind.

On the other hand, if the ultimate and fulfilling

purpose of human freedom concludes man's self-transformation in transcendence, then those positive impulses, found in technocratic society—to arrest biological entropy, to overcome organic limitations, to synthesize technology with humanistic values—may be considered as recurring aspirations, with all their cultural ambiguity, that symbolize freedom's goal. In this way, the exploration for optimal survival may be viewed as the teleological search for ultimacy. At this point our task will be to describe this purposeful quest denoting those clues that can justify its presence.

10

The Situation: A Search for the Rediscovery of Transcendence

The Multiple Choices of Traditions

Let us begin by assuming a broad, ontical description of this religious journey, a description which presents itself as a problem to be resolved amidst conflicting viewpoints of our modern era. Placing the description in this manner points up the complex opportunities in which modern man's religious groping finds itself.

An endless variety of religious patterns beckon him today. Ancient and pre-Reformational traditions, New Age religions, secret schools of gnosticism, Eastern religions, and various psychospiritual and occult movements vie for man's search for his ultimate meaning and destiny. The rapid proliferation of the latest brotherhood, spiritual institution, denominational offshoot, or transcendental drug experience compete vigorously with the more traditional main line churches and synagogues. The historic Christian and Judaic traditions are no longer accepted with full approval. Modern man is becoming more and more unafraid to apply the critical edge of his intelligence to the formerly sacrosanct regions of institutional

religions. The rulers of these organizations—from Rabbi to Pope—no longer bear the unquestioned authority in life matters that was formerly attributed to their office.

The questioning of inherited orthodoxy has been symptomatic of a climate whose inhabitants mistrust and resent putting their full conviction behind an official authority. This questioning climate has received its inspiration less from the official encouragement of Church authorities, than from the names of Darwin, Freud, Marx, the existentialist movement in philosophy and literature, and, most prominently in the second half of the twentieth century, the radical positions of the "Death of God" theologians. These unsettling events and the overall reaction to the national and local catastrophes in our times have left in the minds of many people a profound uncertainty about the positiveness of life. At a certain level of man's anguish over these problems, it is hard to avoid the thought that there is more meaning to life without belief in God then there is with it. Yet man still shows resistance to a negative fate. In sensing the opportunities and limitations of our age, he is continuing the search for meaningful survival by accepting a more profound commitment to the personal task of self-responsibility for his destiny.

If the former statement reflects a major characteristic in the spirit of our age, then to speak of forming religious consciousness is not to identify necessarily with an institutional religion. Although institutional religions and religious consciousness have been coincidental by Western standards for the most part, these two facts may be unnecessarily equated. The enactment of a formal religion presupposes something more immediately

fundamental, namely, the dynamic presence of a personal quest for ultimacy. The question of man's ultimate relatedness to being may very well qualify itself without the official symbol system of an organized religion. In the leeway of our times, the incidence of official religions is no guarantee that the religious impulse—this felt quest to give ultimate coherence and purpose to existence—will always repeat the standard preferences. The symbols consciousness will choose to structure and to satisfy its quest cannot be predicted in an a priori fashion, since it involves itself so much with the personal capacities and cultural dynamics in which it survives.

Consequently, with his scientific objectivity and technocratic culture and the ambiguities of meaning and survival that these unabated achievements call forth, the description and the problem of modern man's plight is twofold—first, to single out the experience of ultimacy; second, to compose the symbolization of his relation to the ultimate condition of his existence.

A Description of the Quest for Ultimacy

The quest of religion ought to clarify the meaning of life seen in its final perspective. It is a quest of contact with life and its renewal, undertaken individually and collectively. It is a teleological quest by the very nature of its dynamic orientation toward a consciously selected goal. Every generation obliges itself to search through its finite experiences for signs of its presence in order to give purpose and coherence to its existence.

But the quest must be more than a purely theoristic

understanding of an idea, for this circumstance would still leave it transitory and limited by definition. The idea of ultimacy, however accurate and functional in its symbolization for the sake of communication, remains secondary and derivative, leaving man separated from its source. Conceptual forms and symbols, though required for rational discourse, are insufficient for the full satisfaction of the quest. It is not a religious exchange of ideas—one version of intellectual fulfillment for another—that impells man today. Ultimacy is akin to a holistic transformation, in other words, a process of self-realization, consciously leading through successive experiences to that absolute, actual unity that embraces and reconciles the total diversity of relative existence. Whether man can find evidential traces in his world for this possibility remains to be seen in the final chapter. If not, then man remains a chance-filled being.

In gauging the modern temper, R. N. Bellah points out that the "fundamental symbolization of modern man and his situation is that of a dynamic multidimentional self capable, again within limits, of remaking the world, including the very symbolic forms with which he deals with it, even the forms that state the unalterable conditions of his own existence."[1] Modern man, then, summarizes in himself those complex historical factors associated in Western culture with the arrival of modern freedom. His preference for empirical or positivistic guidelines is widening now to include other symbol systems in the self-revising social order expressed in the democratic trend of society.

Until recently, man consistently symbolized his

pursuit of ultimacy by transforming the quantitative dimensions of the universe into mathematical equations. In its cultural dominance this one-storied accomplishment included mixed blessings. It denied other dimensions of reality and man's capacities to know other kinds of truth than what scientific objectivity obtains. Society has reached a consensus of awareness today where this exclusive presumption is less tolerated as the highest priority for personal fulfillment.

11

Understanding the Teleology of Religious Consciousness

At this juncture, a typology of religions could be explicated. Proceeding in this way would allow the various credentials of these traditions to be compared on the basis of their symbolic systems. Comparative analysis would reveal similarities and disagreements that would be helpful in arriving at the historical presentation of religious consciousness.

But this is not the kind of beneficial clarification that would suit our purpose here. Instead, let us attempt to clarify the pursuit of religious consciousness in its search for ultimacy by postulating a heuristic distinction based on the directional polarity of consciousness itself. In the concrete experience of religious ultimacy, people generally articulate their stance on the basis of a faith commitment as the highest possible mode of participation in divine truth. There is also a minority that insists that life's intra-goal is beyond the limiting guidance of faith or dogma; that man should press on to the transcendental goal, realizable within his lifetime; and that the burden of religious consciousness today is to reformulate those symbols that bring about this realization. We may refer to

the latter understanding of achieving ultimacy as the esoteric stance, while its more conventual counterpart is the exoteric stance.[1]

The Esoteric Dimension of Religious Consciousness

Esoteric consciousness is not a product of discursive reasoning. Nor is it a transitory, finite episode in one's personal odyssey through life's vicissitudes. It refers itself to the existence of an unbounded, absolutely transcendental reality. Man justifies his affirmation of it by experiencing its unlimited presence and the transformative effect upon him. In its illumination total disclosure of human nature vis-a-vis reality unfolds. Man achieves an inner state of awareness of such magnitude that its descriptions seem superfluous and irremediably distorted. The basic question of birth and death, like every puzzle of cultural existence, vanishes into silent comprehension.

Among religious traditions (and not just the major Western denominations), this transformative experience is recognized by the term "Revelation." It is the substance, foundation and goal of all genuine religious traditions. Its intrinsic reality is above time, space and causation, and beyond birth, decay and death. It is the experience of the infinite plenitude of being from which all contradictions, dualities and polarities arise and are resolved. In itself it is nameless. Tillich refers to it as the "Unconditional." He writes that "it is not a being, nor is it the substance or totality of things; it is—to use a mystical formula—that which is above all beings which at the same time is the absolute Nothing and the absolute

Something. But even the predicate "is" disguises the facts of the case, since we are here dealing not with a reality of existence, but with a reality of meaning, and that indeed is the ultimate and deepest meaning-reality which shakes the foundation of all things and builds them up anew."[2]

Absolute unity defies visualization. Consistent description pales and contradicts, provoking antinomies between religious traditions. Yet symbolism is required to intimate its possibility to the majority of mankind. The ultimate or sacred unity must encompass all possibilities of manifestation in translating its importance to men in their cultural diversity.

The role of external revelation, the oral and written tradition, is to inspire man to this transcendental possibility that is the total realization of his nature. Esoteric consciousness does not deny the duality and distance between himself and this sacred unity. However, this opposition is only apparent, a contingent stage to be methodically overcome by the practical implementation of the appropriate teleological symbols. It is through the personal appropriation of these religious symbols, and not merely an intellectual appreciation of them, that one experiences their directedness toward the Unconditional. The viability of any tradition, then, would oblige man to accept the continuing obligation to examine their import, demythologizing them, if necessary, in order to insure their dynamic status as a vehicle to the goal of ultimate consciousness. If their import does not guide man to ultimacy, then they have failed their meaning.

The Exoteric Dimension of Religious Consciousness

Besides this personal experience of the transcendental unity from which revelation in all its forms in history is derived, there is another more obvious, conventual side to religious conciousness. People inclined toward the exoteric dimension feel at home among the scriptures, dogmas, beliefs and rituals. Their primary pursuit and interest is the support of the symbol system, sacred or secular, that consolidates the opportunities for, as well as the restrictions to, the possibility of ultimate experience. Though often transcendent in intent, the exoteric side nevertheless displays the relative, individualized features of the everyday religious attitude and behavior. Religious testimony takes place more at the plane of sensuous participation in life, urging a certain range of activities that designate the individual's preference for a private, sectarian or denominational set of symbolic forms. While acknowledging an ultimate source, usually under the term "God," the exoteric finds his security in emphasizing the symbolic complex that elaborates his unique religion. Similarly, it is upon this directional plane of consciousness that one can appraise the doctrine of progress, scientific rationality and chance as forms of religious consciousness.

How These Dimensions Oppose Each Other

Consequently, these two sides of religious consciousness often stand ambivalent toward each other. The esoteric respects the dogmas, rites and other symbols

so revered by the exoteric. The problem is not in their functional use as a means of expressing the formless truth of ultimacy. The tension occurs when the exoteric attributes to a conditioned form—be it scripture or ritual, dogma or private sentiment—an absoluteness that only the formless and total Truth itself possesses. The very necessity of communication, of soliciting for new followers, of declaring publicly the symbolic signs of religious allegiance, can sometimes harden these credentials, thus restricting the universality of truth and its validity to these very finite expressions. A tendency develops, individually and in community, that sustains an autonomy and self-sufficiency about the symbolic structures that negates the possibility for transcendence on any other terms. One is saved, redeemed, born again only in this manner or in this community. In mistaking form for substance, man can entrap himself in a parochialism that maintains the limitations and insufficiency of the forms themselves.

Exotericism by itself can threaten the possibility for man to develop beyond the symbolic structure. Instead of understanding the significance of these truths in a limited, symbolic way, the exoteric's assessment presumes these expressions on an exclusive basis. The excesses of sectarianism are born in this instance. It is an imminent risk in all organized religions. Maslow remarks that "what happens to many people . . . is that they simply concretize all of the symbols, all of the words, all of the statutes, all of the ceremonies, and by a process of functional autonomy make *them*, rather than the original revelation, into the sacred things and sacred activities. That is to say, this is simply a form of the idolatory (or

fetishism) which has been the curse of every large religion. In idolatry the essential original meaning gets so lost in concretizations that these finally become hostile to the original mystical experiences. . . . "[3] Likewise Bellah stresses that "only when the symbol has been torn from its experiential context and taken literally as a belief "about" something must we assert its fictional nature. As part of the experience itself the symbol is perfectly and supremely real."[4]

The exclusivism of the exoteric would deny to revelation its historical truth, namely, that it can have multiple and equal instances of ultimate meaning breaking into cultural history. According to the esoteric, to deny this possibility to the absolute, supraformal Truth compromises its indefinite universality of meaning for mankind, which exists in different cultures and climes. By the same token, the rigid emphasis upon confusing the form for the meaning eventually forfeits the validity of the symbol by identifying consciousness too closely with its conditional presentation. Belief in the conceptual elements of the symbol substitutes itself for the directional power of the symbol to lead consciousness beyond its necessary relativism of truth to experience and to actualize ultimate meaning unrestrictively.

An outward dogmatization of universal truths is not meant to be disparaged here. Given the distractions of life and the competitiveness of cultural existence, it is not easy to keep the transformative process, leading to direct, unmediated divine awareness, as the constant focus of human consciousness. Man needs reminders—codes, rituals, dogmas, even taboos—to help sustain the

motivation, and in most cases be the social adhension that reenforces the commitment. For most men the achievement requires some kind of communal support.

In his spiritual growth, man is less than the Unconditional. He learns piecemeal, bringing together what appears as disparate strands of meaning into a unified sense of order and cohesion, gradually converging his finite efforts to cross the threshold of the polymorphic levels of his mind into the superconsciousness of ultimate meaning. Dogmas engage those finite levels rendering the service of a road map. The esoteric cautions the exoteric, like a prophet of old, not to confuse the excitement of reading a travel brochure with the actual entrance and residence of the designated country. Staying merely at the level of accurate information, however comforting, is not the same as experiencing the voyage. Dogmas, like everything else that pertains to the essential relativity of a religion, should inspire man beyond his present conception of himself in the existential world. His security with religious symbols must not plateau his unrestricted desire to grasp the Unconditional, but produce in him an unyielding drive to exceed their finite relevance. This tension within man is the paradox of religious symbolism—it must engage him at the stage of his immediate existence and yet allow him to intuit beyond the composition of its finite meanings to the transcendental sphere, the experience of insurmountable fulfillment.

The Crucial Development of Religious Symbols

Tillich remarks that "substance or import is grasped

by means of a form and given expression in a content."[5] It is unavoidable that the communicative forms will be less than the reality--that absolute transcendental unity of existence they purport to express. These limiting features do not make them less valuable. Ordinarily, men do not dwell in pure intuition of divine reality. Consequently, they require symbolic structures and activities to understand one another and communicate meaning—no less for ultimacy.

Likewise, transcendence of the Unconditional does not appear immediately to the senses and rational discourse. In the unfinished condition of his existence, and attempting to overcome the dichotomies of ordinary conceptualization, man is forced to employ relational symbols that intimate transcendence. His developing being clearly illustrates the necessity for the relative nature and analogical construction of the sacred truths found in the theoretical conceptions and doctrinal statements at the exoteric level. These give purpose, drawing him to their goal.

Both the exoteric and the exoteric admit the truth-bearing quality of transcendental symbols. Basing himself on an irreducible dualism between the Unconditional and man the conditional, the exoteric accepts his allegiance to the finite quality of the symbols as the best his consciousness, and thus his being, can grasp. The esoteric, basing himself on the isomophism of consciousness with reality, recognizes their importance provisionally, viewing them as a temporary, regulatory vehicle facilitating consciousness to encounter absolute transcendence. A distinction that goes to the heart.

With this perspective, the esoteric frees himself from the monopolistic and doctrinaire tendencies that are so much a part of the exoteric's allegiance. Yet he appreciates the necessity for the exoteric forms to provide the intimations of the absolute found throughout the religious traditions of the world. He respects the responsibility of an organized religious community to translate the experience of ultimacy into special words and deeds that unify the membership in their orthodox performance. He assumes, however, that every genuine religious tradition is a possibility, an historical actualization of the absolute creativity of the Unconditional. In this way, esoteric consciousness avoids the denominational aggression that has otherwise spoiled the sacred intentions of Western religions.

In equal respect to the symbolic and discursive conditions of human intelligence, esoteric consciousness refuses the exoteric's conviction that the particular mode of revelation invested in scripture, ritual, dogma or even an incarnation of the Unconditional is the only or supreme mode of manifesting transcendence. Not having achieved the transcendental experience, exoteric consciousness finds it virtually impossible, viewing ultimacy as it does from its single perspective, to grant equal and analogous credibility to other revelations.

Since direct and immediate experience of the Unconditional as he understands its presence is far above and beyond his presumed human capacities, the exoteric's principle of identity, his center of consciousness, resides in the authoritative symbols and conceptions elaborating his commitment to ultimacy. The exoteric's commitment

to his teleological symbols would fall short of man's inherent capacity for transcendence. For him, there can be only one, true religion whose symbols postpone transcendence.

The Necessary Plurality of Cultural Symbols

For the exoteric, the fundamental unity of all revealed religions or experiences is not impaired by their cultural diversity. These sacred traditions appear throughout history in varying degrees of explicitness, revealing intimations and embodied realizations of ultimacy. No religious constituency has the monopoly on encountering the Unconditional or achieving the state of holiness, as a study of the history of religions can demonstrate. Nor does this unseeming latitude of acceptance imply a compromisal attitude or relativism. For esoteric consciousness, sacred, absolute undifferentiated truth is one in its transcendental essence, but necessarily multiple in its historical manifestations. The idea of a plurality of religious forms emerging in cultural history is not surprising, except to the exoteric who finds it prejudicial to his exclusive pursuit of salvation. Moreover, the esoteric argues that there are no indisputable proofs that support either the exoteric's claim to the exclusive possession of sacred truth or the unmodifiable orthodoxy of any religious form. A form by its definition is a limit, and so must compensate for what it excludes by analogously repeating itself outside its initial boundaries. For the esoteric the distinction between universal ultimacy and its mode of expression is harmfully lost when these two related orders are

compressed into the ideology of "true believers"—a not unfamiliar symbol among institutional religion.

The composition of religious symbols in revealing intimations of ultimacy must sustain a certain tension between the existential conditions of its audience and the transcendental goal that completes man's nature. In light of major changes in cultural conditions, symbolic revisions may be necessary. Unless man responds perceptively to this constant challenge, symbolic substitutes can emerge and present themselves culturally as pseudo alternatives. Our brief study of the scientific investigation of nature shows its correlative development with the formation of religious consciousness that has both positive and recessive attractions for man. Equally, modern history can show that where teleological categories of transcendence have been culturally rejected, consciousness has relied upon a secular worldview to fill in the fundamental requirement of man for ultimate meaning. Amidst the flux of culture, then, the question must be asked regarding the criteria for recovering and preserving the possibility of transcendence.

Religious Symbols Demand a Praxis of Transcendence

The relation of the Unconditional to the conditioned meaning is the crucial responsibility of religious symbols. Not to finalize its symbols in definitions but to render them as an indefinite acceptance is more appropriate for religious consciousness in presenting its total view. Since reality cannot be less in its totality than in man, there is a definite correlation between the substance

of religious consciousness and the objectivity of meaning in life itself. Not every religious symbol incorporating man's understanding of life can effect the possibility of transcendence. But if human consciousness possesses a foundation of teleology within itself, then the development of religious consciousness is not an arbitrary exercise but can become an ordered experience that is most effected by those dynamic symbols explaining its achievement. The question here is not of an abstract formula, a theoretical paradigm relating man in the world to the Unconditional, but of evoking a participatory experience that achieves the unconditional, transcendental reality signified by the symbol.

In a similar way, W. Smith suggests that a continual test for the depth or value of a religious symbol is ". . . how much transcendence it can be made to carry for those who have chosen its particular shape to represent the pattern of their religiousness. The sacred must always be not only ambiguous but unlimited: it is a mystery, so that no specific significance can exhaust it—there is always more waiting to be explored. A religious symbol is successful if men can express in terms of it the highest and deepest vision of which they are capable, and if in terms of it that vision can be nourished and can be conveyed to others within one's group . . . one must think of the symbol in terms not of its meaning something, but of its focusing on crystallizing what life means, what the universe means, to those who through this symbol find that life and the universe can be seen (or felt) to have coherent meaning."[6]

Formerly, the religious belief function of the symbol

was supportive, bridging the distance between man and absolute coherence. In today's world a different challenge is present. Contemporary man finds it increasingly difficult to speak with confidence about that which exists beyond the limits of his finite existence. Thus the burden of religious symbolization is to represent the presence of transcendence within man's experience of being in the finite world.

If esoteric consciousness is correct, then no cultural presentation of ultimacy has exhausted its vital source. Yet in its symbolic constellation of meaning, the formation of a particular set of religious symbolization may no longer engage the historical circumstances speaking to contemporary man. H. W. Richardson addresses himself to this problem of ultimacy by stating that "what is needed today, therefore, is a new transcendence and identity myth as the foundation of the psycho-social order. There are signs that such a myth is emerging. Its theme is integrity and transformation. . . . It is, rather, his own self-transformation into a higher being, his spiritual rebirth, his divinization. . . . By his integrity to this vision, man gains for himself his own positive identity, his own aseity of being. . . . To be "integral," then, is not to need to complete ourselves through others (or from outside) but to need to express and expand ourselves from within. . . . The kind of transcendence correlated with the myth of integrity and transformation is that of self-transcendence, expanded consciousness, spiritual rebirth, and divinization."[7] If Richardson's description is in sufficient accord with our presentation of esoteric consciousness, then man himself becomes the paradoxical immanence of

the transcendent.

So as not to get lost in admiring the theoretics of this proposal, the important issue now is whether this new effort and insistence for ultimate meaning has any basis in the cultural reality that engages man today. It is a question of finding those clues, signs and testimonies that offer purposeful assurance of its success. Otherwise it remains another pius but vain attempt to rescue transcendence in a postreligious, secular age.

Consequently, today's requirements for religious symbols of transcendence demand more than agreement on its formal concept or theoretical meaning. Rather, to face the existential situation of man's cultural thinking, one must demonstrate the operational and behavioral implications of its meaning. It must be a pragmatic experience that affects the constitution of man's consciousness. It is out of this expansion of self-consciousness that the theory can be grounded. Turning the process around, one might ask whether symbols can deliver their expectations? Are they teleologically effective in activating man's self-transformation?

12

The Teleological Clues for Rediscovering Transcendence

In searching for the concrete experiences and data, if any, that can justify reinterpreting contemporary man in his chance-filled autonomy, it is not to our advantage to return to the traditional symbols of ultimacy since these have been discredited by the cultural experiences of today. It is the very meaning of these credentials publicly associated with belief in an institutional religion that makes them suspect in light of man's attempts to fathom his secularly lived situation.

Granted this mood of scepticism regarding religious symbols of transcendence, our search shall proceed, nevertheless, along the lines of an ontic investigation, examining certain dimensions of ordinary human experience as well as certain scientific disclosures for signs of an order or region of purpose that frees man from his empty secularity. In beginning this way, our procedure can minimize the objection that the attempt necessarily presupposes a universal logos structuring reality.

Our ontic investigation will not be exhaustive in ferreting every possible dimension or human experience that could indicate a sense of ultimacy. Instead, the

procedure will be selective of those experiences in human consciousness that accumulatively can offer criteria to challenge the restrictions and impositions that both organized religion presumes and secular consciousness takes for granted in light of modern science. Finally, a discussion regarding the meaning and power of this evidence for its implications in religious consciousness and a revised understanding of the potentials of human nature will complete the last chapter.

Four Experiments in Human Consciousness

1. Let us start by considering the phenomena of everyday human consciousness in its broadest outline, namely, the customary states of functioning experience. In the various acts of thinking that comprise one's working days and leisure hours, regardless of the importance given to a particular train of thought, or how prominent or anonymous the thinker may be, there is a special activity performed by the mind in conjunction with ratiocination. In the very act of thinking about a topic or content, even in remembering ideas and experiences, one can be aware of the activity as it proceeds. One can step back behind the stream of discursive activity, as it were, and simply observe the busy functioning of the discursive process at work in one's own mind. No matter how the thinking mind may be occupied at the moment, one can simultaneously be aware of the occupation. One can be aware of oneself in the act of discursive reflection.

2. If the identity of my self-consciousness were entirely equivalent to the discursive process, then it would

be next to impossible to perform two other states of consciousness. In the ordinary periods of daily life, one experiences two additional phenomena that are not characterized by discursiveness. One passes through the state of dreaming and sleeping. While dreams may have discursive elements within their unfoldment, the experience of being awake and thinking is essentially different from the properties of dream experience. So with sleep.

In acknowledging the wakeful state of thought, in recalling a dream and in waking up from sleep, the question is, Who did the thinking, dreaming and sleeping? In none of these experiences of consciousness does the person cease to exist and then be recreated. Since one can proceed through these states in experiential sequence, self-consciousness can not be fully identified with any one of them. Yet the same self perdures through these three states of experiencing, surviving each one and sustaining itself in continuity with them. This triple arrangement or sequence infers that consciousness is more than any one or their total. There is a certain indefiniteness to consciousness that permits it to experience these three definite states, over and over again, without being permanently fixed therein. Human consciousness is thus more than the finite forms that it experiences as well as more than the states that normally occupy its attention.

3. In addition to the experience of non-discursive awareness and the three states of consciousness, there are unpredictable phenomena that occur infrequently when struggling with a problem. In contrast with the harsh pace that some drive themselves at work, people are often surprised to find another experience of knowing that is not

obviously and immediately the result of their strained efforts. Unexpectedly, like a "bolt from the blue," a sudden disclosure of insight illuminates the mind. The problem is solved. This breakthrough can occur at the oddest moments when it is least expected or deliberately desired. The "eureka feeling" that swells one with a sense of wonder is simply an experience of knowledge that cannot be reduced to the labor of discursive reasoning. The creative breakthrough distinguishes itself from the exertion of discursiveness by its effortless appearance, akin to the way the truth of a landscape simply offers itself to the eye of the beholder. Almost through no fault of one's own, awareness seizes, surpassing one's straining efforts, coming as a gift.

There are other experiences that consciousness enjoys and finds meaningful, such as the awareness of the beautiful or the virtuous in life, that makes man realize that he is more than his rational consciousness. But let us take up one more daily experience that confronts man, especially in these times.

4. Let us consider the experience of the limit or the negative in life. The thrust of self-consciousness to objectify itself into the world promotes a sense of identity. In needing to know the world, at least for a sense of personal identity, man chooses to exercise his discursive faculty. In presuming that personal survival requires knowledge of the external world, man uses his discursiveness to secure this presumption. The emergence of desire tends to function in a selective process for locating those aspects of the phenomenal world which correspond to the exigencies or ambitions of his personal survival.

Buoyed up as well as compelled by the quest to experience life, the mind's embodiment into the phenomenal world necessitates relentless waves of desire to satisfy its continuing presence there. To satisfy its quest for survival and fulfillment, it would seem to be in the mind's best interest to prolong concern with worldly fashion and experiment with the latest trend.

Human experience, on the other hand, demonstrates again and again that concrete desires have saturation levels. It is only a matter of time before they produce ennui in the experiencer. The irony of the mind is that the quest is characterized by an indefinite finitude that desire specifies without being totally fulfilling. In association with the mind, one remains on a treadmill of desire to satisfy its promptings.

Similarly, in the realm of cultural survival, man finds himself in society with all his sincere hopes and model systems to alleviate his complex desires producing only temporary success. The finite quality of the satisfaction uncovers, often unintentionally, newer forms of cultural limitation. A certain estrangement emerges from the mind's own quest. Presuming the mind's discursive arrangement the norm of waking consciousness, one would expect accumulative fulfillment to resolve the continuing quest to find satisfaction and eliminate the ills of existence. But the more I experience, the more the quest beckons. The mind impells itself to try to close the gap between fulfilled desires and the unrelieved quest. In complying with desires, the mind is realizing its nature. Everything seems to be in proper order. But consciousness cannot evade sensing the distance between the mind's

completed goals and the uncompleted quest. No matter how often the mind completes its desires, one is always running competition with the painful void of non-fulfillment. The awareness of the uncompleted void leaves room for oneself to reconsider self-consciousness beyond the boundaries of rational desires. Man faces within himself an unrestricted desire for experiencing knowledge with no end in sight. He remains in a constant dilemma. He knows what he wants, but even in attaining it, he senses a discrepancy between his accomplishments and the enrichment that can still be his. Life seems to be a relentless effort to overcome the negative finiteness of his desires, perpetuating man to live from one cultural reprivement to the next.

The question of faulting the human spirit's indomitable quest, repeatable in Western culture, may not be attributable to the presence of desire per se but to the attempt of satisfying it only or primarily at the level of discursive consciousness. The hidden flaw may be the continuing effort to exchange one rational scheme for another, always remaining on the same level of consciousness and thus inexorably constructing boundaries, which, as societies demonstrate, sooner or later bring one's attention to their limited contribution. Since the advance in the expansion, renovation or replacement of cultural boundaries does not require a radical alteration of consciousness, the improvement over cultural limitations is merely exchanging one set of worn out plans for betterment for another. The change remains within the same modality of consciousness as previously employed. Progress here is only lateral, realizing further potentials of

cultural ingenuity within the zone of rational parameters. Thus one cannot speak of transcendence but only of supercedence, more of the same finite, transitory replacement. Discursive consciousness, even in its most prized form of scientific rationality, has unlimited variations in articulating reality, but the intelligibility of its cognitional process remains basically the same in its applications to different subject matters. Even taking into account the wide differences between thinking about astro-physics, geometry, making a shopping list for a church bazaar and doing one's income taxes, the reasoning process stays analogously similar. These are all acts of human reason, none of which require a complete alteration of consciousness itself nor its field of apprehension.

Conclusion

These four experiments are not startling or necessarily rare events in daily life. Together or by themselves, they do not present unimpeachable evidence for the admission of a transcendental order. Since experiments 1, 2 and 4 are capable of being duplicated almost at will without too much difficulty, these events of consciousness are not arbitrary or freaks of nature. Most importantly, their experiential evidence protests identifying human consciousness entirely within the field of discursive activity.

Five Experiments in Human Consciousness Suggestive of Transcendence

At this juncture, let us supplement the above

conscious phenomena with an unusual series of experiments that was conducted under the eyes of trained researchers within the confines of a research laboratory environment.

In the Spring of 1970 at the world's largest mental research center, the Menninger Foundation of Topeka, Kansas, an unusual series of experiments was conducted upon the range of human consciousness. It had been, and in some quarters of medical science still is, an accepted truism that human consciousness is restricted in its voluntary control over bodily organs and systems. The majority of physiological activities from the rate of cell repair to the movement of the digestive and heart organs is beyond the pale of rational control. The autonomic nervous system is not considered to be under the awake mind's direct and immediate utility. Most of the human body's activities and functions fall under the domain of the unconscious. Subjective purpose, in the sense of controlling both thought and body, is quite limited. There seems to be little credibility to anyone asserting that he could control his heart beat at will, accelerate or slow down the aging process, produce tumerous growths instantaneously or remain awake while permitting his brain and nervous system to sleep.

In order to discover whether these limitations were truly representative of consciousness' range of operations, the following experiments were conducted on the same individual.

1. The leads of two thermistors (a sensitive detecting device that registers temperature changes at the surface of the skin), were connected to the subject's right palm. He

predicted beforehand that he would alter the temperature between each side of his palm. Within a period of fifteen minutes, there was a simultaneous warming and cooling of the right hand, causing the "left side to become pink and the right side grey." The temperature between the sides was eventually 11 degrees fahrenheit—an increase of 9 degrees over the original temperature. As the director of the experiment pointed out, "without moving or using muscle tension he 'turned on' one of them [parts of the hand] and 'turned off' the other."[1]

2. While remaining motionless, and upon a given signal, the subject's heart beat slowed in less than 60 seconds from a pumping rate of 74 beats per minute to 52 beats. At another time, the heart rate increased from 60 beats to 82 beats per minute in less than 8 seconds.[2]

3. In an experiment to stop the heart and yet remain alive, the steady heart beat of 70 suddenly produced an atrial flutter wherein the heart rate average became 306 beats per minute for a 16.2 second interval. Actually the length was closer to 30 seconds, for the technicians were surprised by the event of the dramatic heart alteration and conversed for some moments before fully recording the procedure. No blood can be pumped through the heart chambers when they open and close with such rapidity. The subject mentioned that this performance could be sustained for 30 minutes. This type of heart stoppage is often associated in cardiac arrest, producing unconsciousness, where "a section of the heart 'flutters' in oscillatory mode at its maximum rate, the chambers not filling properly, the valves not working properly and the blood pressure dropping."[3]

4. Sitting motionless, the subject "caused a 14-inch aluminum knitting needle mounted horizontally on a vertical shaft 5 feet away from him to rotate toward him through 10 degrees of arc." This exact direction and degree were requested by a member of the professional audience just as the experiment began. The experiment was immediately repeated with the same results.[4]

5. Announcing that he would sleep for exactly 25 minutes, brain-wave detecting equipment was connected to the subject's head, and thus monitored and verified the sleep state. Upon awakening at the precise minute, he repeated the various words and sentences of every one in the room which were articulated between them during his sound sleep, also mentioning the various activities the people performed while he was asleep.[5]

In addition to these laboratory scheduled experiments, the same individual, in a less formal setting, performed the following:

a) Demonstrated that a form of light energy could irradiate from the center of his chest and a polarized picture was taken "in which most of his chest was obscured by a disc of pale pink light."[6]

b) In a casual conversation with the Director of Research at Menninger about tumors, he asked the director to place his hand at a certain spot on his body. The director felt a lump under the skin resembling a moveable cyst. Then, on call, it simply vanished. He repeated the same congestion of cells at another part of his body which the director ascertained by touch and it disappeared upon call. Similar cysts were also produced that projected slightly upward, resembling a wart. These were produced on

call within a fraction of a second and disappeared or receded into the body within a fraction of a second at will. On one occasion a biopsy was obtained of two cyst-like formations, one on each forearm. The report of their analysis was as the subject predicted: on one forearm the cyst was benign; on the other, cancerous.[7]

c) By the softest touch, he caused the middle portion of a solid piece of wood, a 12-inch ruler, to fracture into pieces. Similarly, using a metal edged ruler, held by someone at both ends, he merely pointed his index finger at the center part in a slow downward motion of his hand, causing the wood to split apart and the metal edge to twist.[8]

d) A clinical psychologist entered his office for a visit and he urged her to ask him any four questions about any topic of her choice. After getting over the initial surprise of this request, she asked him four distinct and unrelated questions. Upon the completion of the wording of the fourth question, he handed her a folded piece of paper upon which were written the exact four questions and his answers. He had written these sentences before she came to his office that day.[9]

What is of special note here is the manner in which the majority of these experiments were accomplished. The intentional process whereby consciousness achieved the desired effects proceeded without the customary use of the laws of physics which govern mechanical activity. To alter the blood flow, say, in the palm of my hand, certain causal relations are detectable empirically among the nerve fibers and members of the body to produce this result. Yet in most of the experiments the effect took

place at designated portions of the body that, in terms of its volitional occurrence, goes unexplained biologically speaking. Exactly how this force operates upon organic, human matter exceeds the conventional methods of empirical detection.

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The Implications for Revising the Boundaries of Consciousness

The exercise of human consciousness in the above experiments is unparalleled in the history of Western research upon the range of consciousness. Clearly, the position of the mechanists and the behaviorists, who deny to consciousness the power to manipulate the autonomic nervous system and view consciousness as a function of the brain, is refuted by the evidence.[1] The human agent revealed his intentions for every experiment, placing the entire phenomena within a purposeful context. A new teleological horizon was open to man's potentials. Chance becomes questionable as a fundamental factor in reality. If chance is the rule, then what took place was an ordered ambivalence of delicate control, planned and executed repeatedly, requiring means and ends, in direct opposition to random operations. The subject knew what he was doing and predicted the outcome.

But the exercise of this kind of control in a demonstrated ability to dominate the bodily constitution is not the ordinary production of discursive consciousness. Though coming from the human agent it presupposes a different level of consciousness. One has to propose a

richer schema here, rather than seeing this performance as a new or unannounced version of rationality. The extension of decision over matter and cognition revealed above is a widening of self-consciousness that takes leave of the boundaries of discursiveness or scientific rationality. The voluntary production of that type of phenomena cannot be reduced to, nor explained by, a rational, mechanistic portrayal of human nature.

A Pluralistic Universe Implies a Pluralistic Consciousness

A comparison may be in order. The beginning of this century saw the remarkable advances in penetrating the atomic and sub-atomic levels of physical reality in which the older paradigm of Newtonian mechanistic understanding could no longer account for the existence and activities of the microworld. Reluctantly, physical science is being pressured under these discoveries to recognize the limitations of the mechanistic worldview and admit a pluralistic universe. We have noted also the operations of organic beings in their living complexity manifest a level of operation that cannot be subsumed under the laws of the older paradigm. The intelligibility of the various levels of material existence, inert and living, must involve concepts and symbols that are commensurate with the insight into those regions of reality.

The advance in physics, however, which led to quantum and relativity theories, whereby the scientist can now admit the multivalent levels of material energy, is still not an illustration nor an experience of transcendence. The hidden reality of the atomic and sub-atomic

levels was available, always in principle, to rational pursuit. Its discovery awaited the proper instrumental and experimental refinement to disclose the data. In other words, man himself, in the making of this discovery, was not transformed ontologically; his awareness only expanded laterally, that is, the experience of the breakthrough was entirely within empirical and discursive parameters. The being of man's consciousness remained essentially unaltered in the depth of its operation. Our description here does not rule out the contributions made by the unexpected occurrence of intuitions and the like, mentioned in the first series of experiments before as events of consciousness. But any student in physics today can repeat the experiments of any pioneer discovery to arrive at the identical conclusion about the existence of these energy levels. The student removes his ignorance about a particular area of reality, but the predicaments of life and its ultimate meaning still loom before him. The experience of this kind of scientific knowledge has not banished the disvalues of secular existence in his consciousness.

Yet the discovery of a pluralistic universe, whose interpretation demands conceptual adjustment, is beginning to point in its own way to a certain convergence between consciousness, nature and ultimate meaning. It was William James' judgment that "our normal consciousness, rational consciousness as we call it, is but one special type of consciousness, while all about it, parted from it by the filmiest of screens, there lie potential forms of consciousness entirely different. We may go through life without suspecting their existence; but apply the requisite stimulus, and at a touch they are there in all their

completeness, definite types of mentality which probably have their field of application and adaptation somewhere. No account of the universe in its totality can be final which leaves these other forms of consciousness quite disregarded. How to regard them is the question—for they are so discontinuous with ordinary consciousness. Yet they may determine attitudes though they cannot furnish formulas, and open a region though they fail to give a map. At any rate, they forbid premature closing of our accounts with reality."[2]

Nature as a Multiple Unity

The wonder of the senses is still a finite marvel. Human eyes and ears only register a slender width on the total electromagnetic spectrum. We do not perceive through our senses cosmic, gamma, x, light, radar or radio waves and rays. The world that exists for us through our senses and rational discernment may be only one possibility existing simultaneously with unlimited others. Given a radically different capacity of awareness or sense receptors, we would experience an unimaginably different world from the structures available to ordinary apprehension. Already in this century. we have discovered that our everyday Newtonian world is actually not the ground floor but one of the middle levels of reality. Below it, so to speak, is the microworld of quantum physics and above it is the astro realm of relativity theory. Nor can science presume that even these worlds close the accounts on reality. But the point here is that the major concepts comfortably adjusted to the Newtonian outlook can not be adjusted

to the upper and lower levels. The apparent apprehension of empty space and solid bodies pertaining to the ordinary sense experience of our world loses its meaning once one ventures beyond the boundaries of middle physics.

The logic of our everyday world which assumes the independence and isolation of bodies would seem to accompany the modern sense of personal autonomy that characterizes our age. Yet something very different occurs at the atomic level. F. Capra points out that "a careful analysis of the process of observation in atomic physics has shown that the sub-atomic particles have no meaning as isolated entities, but can only be understood as interconnections between the preparation of an experiment and the subsequent measurement. Quantum theory thus reveals a basic oneness of the universe. It shows that we cannot decompose the world into independently existing smallest units. As we penetrate into matter, nature does not show us any isolated 'basic building blocks,' but rather appears as a complicated web of relations between the various parts of the whole. These relations always include the observer in an essential way. . . . In atomic physics, we can never speak about nature without at the same time, speaking about ourselves."[3]

While there are different interpretations of quantum theory, there is general agreement among scientists that the universal interconnectedness of things and activities is undeniable. In this regard, D. Bohm remarks that "one is led to a new notion of unbroken wholeness which denies the classical idea of analyzability of the world into separately and independently existing parts. . . . We have reversed the usual classical notion that the independent

'elementary parts' of the world are the fundamental reality, and that the various systems are merely particular contingent forms and arrangements of these parts. Rather, we say that inseparable quantum interconnectedness of the whole universe is the fundamental reality, and that relatively independently behaving parts are merely particular and contingenet forms within this whole."[4]

The seemingly polar opposites and independent events that occur at the ordinary experiential level of human perception give way at the atomic and sub-atomic levels to a dynamic unification where matter is both continuous and discontinuous, a field of force and unitary bursts of energy, a wave-like phenomena as well as a particle-like unit. Reason and language strain to conceptualize and symbolize this dynamic unity of opposites that cannot fit the three dimensional world of middle physics. Scientific research seems to be saying that reason is most comfortable at the grosser, readily empirical, macroscopic realm. At this level of insight mechanistic concepts are easily verifiable and human language has little difficulty correlating its references. But the more consciousness delves into those regions of reality less congruent to the normal conditioning and receptivity of the senses and discursive analysis, the more rational consciousness has difficulty in imagining and articulation. The mind stumbles upon situations in reality that are simply not discoverable at the ordinary, empirical realm nor would be expected or permitted by the logic developed from the macroscopic experience. The phenomena are incoherent within a mechanistic, common-sense approach that typifies everyday encounters with life.

In attempting to find the ultimate building blocks of nature, physics has discovered instead dynamic patterns which are not isolated entities, and they perform as integral parts of an inseparable network of interactions. A dynamic interplay occurs in which particles are formed and unformed—created and dissolved, if one prefers—without end into continual variations of energy patterns. Stable structures emerge, order persists in event and activity, but nothing remains static. Once reason attempts to seek meaning beyond the macroscopic dimension of tangible matter, organic concepts have to replace the mechanistic ones. While these new conceptions may have little pragmatic use for technology, they are indispensable for explaining the subtler regions of fundamental energy exchanges exposing the cosmic unity among nature's inhabitants.

An intriguing question at this point is the remarkable stability of the universe to sustain levels of complexity amidst the unimaginably ceaseless flow of energy that is being emitted and absorbed, colliding and fusing, attracting and repulsing, where exchanges and interactions occur at such lightening-like speed releasing radiant power that, in turn, affect the entire complex, reaching even beyond our galaxy. In the world of matter, nature only allows temporary identity. Order in nature persists in a transitory manner yielding to the emergence of newer patterns, which may occur in a flash or take eons of preparation. Chance and novelty take place, but are always dominated by the processional harmonies of energy integrating them into the universal matrix of the cosmic whole. While the evidence in nature is less compared to analyzing human

purposeful actions, there is sufficient stability, order, and variable consistency to back up the teleological processes more discernable at the level of organic reality.

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Consciousness and the Order of Nature

Physics has uncovered exceptional regions of reality that are more fundamental than the world the Newtonian paradigm conceived for centuries. Regardless, society will still employ mechanistic ideas and gross, empirical concepts for their everyday understanding of life. Nevertheless, scientific research is hinting at ontological and epistemological revisions that society may be in dire need for rescuing itself from its technocratic and secular exclusivism.

Physics becomes a case in point to illustrate the breakdown of viewing the world from a single ontological level amenable only to a mechanistic epistemology. Scientific rationality is being recognized as a deliberate form of consciousness, an epistemological vector that is constructed for designated purposes. A legitimate manner of proceeding to explore reality, to be sure, but a method that leaves out other purposes and dimensions of reality from its partial grasp. Thus, it cannot do full justice to the fullness of reality—even at the subtler regions of atomic and sub-atomic events. For Physics has come upon regions within the horizon of scientific exploration that

deny its customary mechanistic worldview. These richer domains of reality have forced a revolution to understand the workings of nature to the extent that the scientist himself has entered into the discovery and its explanation. The sense of reality that emerges from contemporary physics portrays the universe as an interconnected cosmic web in which man is not an observer but a participator in a participatory process. Human consciousness can no longer be accepted as a bystander, extrinsic to scientific insight. This qualifying factor is especially evident at these subtler regions of energy exchanges.

E. Wigner states that "it was not possible to formulate the laws of quantum theory in a full consistent way without reference to consciousness."[1] Scientists are suspecting more and more that the presence of human consciousness at an experiment may have, although inadvertently, a definite effect upon the outcome of the phenomena. The final evidence of the experiment may be due to the confluence of both mind and matter, rather than the presumed total objectivity of the observer.

Toward a Unity of Consciousness and Nature

A specific illustration of the possibility for consciousness to affect living matter was cited by a series of experiments involving a polygraph machine (commonly referred to as the lie-detector). By carefully connecting the machine's sensitive electrodes to various plant life, the plant registered reactions upon the graph paper similar to those tracings found with human subjects in emotional states. The researcher discovered that the mere intention

of harm or well being toward the plant immediately produced the appropriate tracing upon the machine. Moreover, "once attuned to a particular person, plants appeared to be able to maintain a link with that person, no matter where he went, even among thousands of people."[2] The plants were able to react to human emotions around them as well as to the injury or death of other organisms within their proximity. The researcher experimented further with "infusions of all sorts of single cells, such as amoeba, paramecium, yeast, mold cultures, scraping from the human mouth, blood, and even sperm. All were subject to being monitored on the polygraph with charts just as interesting as those produced by the plants. Sperm cells turned out to be surprisingly canny in that they seemed to be capable of identifying and reacting to the presence of their own donor, ignoring the presence of other males."[3] From these experiments, the polygraph expert, assisted by Dr. H. Miller, a cytologist, hypothesized that man's "five senses . . . might be limiting factors overlaying a more 'primary perception,' possibly common to all nature."[4]

Both science and religion may be on the brink of a joint breakthrough in their mutual search for ultimacy. Does the direct control of the human consciousness have to stop at the presumed limits of the body? Could not consciousness extend to impersonal matter as well? In his study, *The Mystery of the Mind: a Critical Study of Consciousness and the Human Brain*, W. Penfield mentions that the decades of examining the mechanisms of the brain have slowly forced upon him the distinction between the mind and the brain. He sees mind as "a basic element in itself. . . . The mind seems to act independently

of the brain in the same sense that a programmer acts independently of his computer. . . . It will always be quite impossible to explain the mind on the basis of neuronal action within the brain. . . . Mind comes into action and goes out of action with the highest brain-mechanism. But the mind has energy and the form of that energy is different from that of neuronal potentials that travel the axone pathways."[5]

When the subject of the Menninger experiments was asked for the basic principle of his performances, he mentioned that the entire body was within the mind but the mind was not entirely within the body. His training gradually expanded his awareness past the boundaries of rational discernment into further reaches of consciousness that no longer viewed reality in terms of polar opposites. The rational dimension and the energy structures available for apprehending the Newtonian world or everyday life are true, but in a limited and relative manner. When consciousness expands itself, one becomes aware of further levels of universality that directly correlate with the intelligible penetration of the ontological values of the pluralistic universe. Just as physics hints at the surprising connections between the observer and the experiment at the subtler regions of energy, so human consciousness can actually cross the gulf that reason perceives as separating man's physiology and the impersonal, physical world of science. By expanding inner awareness to the subtler, more fundamental and more universal levels within its range of apprehension, the unity of life dawns.

To some extent, no human adult is a complete stranger to the experience of a self-transformation in

consciousness. The fact of puberty, for example, involves a remarkable expansion of the entire person that does not leave the outer world untouched by this natural transition. A radical, irreversible change takes place, both in the physiology and the cognitive and affective aspects of the human being. There is a greater depth of appreciation of self and life in which many values in reality are now first discovered. The personal and social dimensions of life are enhanced in ways that could not be understood without this experiential transformation. Definite relationships undiscerned for years are now possible for actualization. One sees and evaluates life more comprehensively than before because of the wider vision and power residing within this natural growth transformation. Granted that this change was not personally selected, yet the overall transformation in man broadens his field of human choices, allowing him to discern meaning that was previously undisclosed due to the limitations of his rational awareness.

The convergence of evidence may allow man to hypothesize that as consciousness transcends its rational borders, the power of this expansion stretches across to unify the ordinary polarity between the mind and its external objects so that one can now control the movement of the particles of matter just as well as one does his thoughts. One integrates hidden laws of conscious control that embrace the multiple energy levels comprising nature. The psycho-somatic unity of mind and body is extended to include the micro-dimensions of reality as well as the astro-dimensions.

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Man: The Paradoxical Immanence of the Transcendent

Man can demonstrate not only remarkable control over the body with the ordinary use of reason, but he can further demonstrate, on the basis of the Menninger experiments, a certain control over his bodily activities and the natural world that exceeds the range of his everyday capacity. The significance of this recent discovery has ramifications for both the scientific and the religious understanding of man's nature.

What is emerging from the dialectics of discussing the meaningful implications of the evidence is the necessity for revising the notion of transcendence, as well as admitting its presence.

In the typical, Western religious sense of the word, the highest symbol denoting transcendence is God. The viewing of this symbol conveys elements of meaning that vary according to the denominational context that uses it. Associated with its global, cultural significance is a whole list of implications for man's natural limitations in his religious growth. On a comparative basis, the Menninger experiments would have to be classified as miraculous. The instantaneous congealing of either benign or

carcinogenic cells and their equally instantaneous demise, the deliberate alteration of matter at a distance, the apprehension of sensible impressions without the use of bodily senses both during sleep and while blindfolded, are but a few of the events that would be attributed within the customary evaluation by a religious group to divine powers. Yet the subject of the experiments explained the phenomena upon the general laws of consciousness, an entirely natural process, not at all exceeding the normal range of competency for a trained human being.

Our point here is not to dispute the religionist's insistence of divine powers occurring within the human sphere, but only that the results often attributable to divine intervention may be available to man's potentials without the requirement of a denominational belief system. Moreover, the older dichotomy between heaven and earth, the natural and the supernatural, the divine and the human, requires a careful reexamination in view of the indisputable results obtainable by human consciousness. At the same time, a revision of the nature of reality as a single ontological plane is feasible in light of the same evidence. Scientific experimentation and predictability may be more comfortable without admitting pluralistic levels of reality, but it cannot accomplish its overall purpose of rendering an intelligible account of the universe without them.

In reflecting about the import of the above considerations a totally different view of the nature of man emerges from either the secular or the religionist's version prevalent today. For one thing, on the basis of these events of consciousness, there is an enormous increase of freedom

over the material conditions of human nature that have become so much a part of man's cultural understanding of his destiny. The enlargement of self-control over the entire field of matter, including man's bodily systems, proposes new relief into the recurrent problems of bodily pains and cultural discomforts.

In conjunction with this freedom over matter, there is the additional evidence of freedom beyond matter in the cognitive apprehension and the creative influence of empirical reality without the use of bodily senses or mechanistic instrumentation. These verifiable experiences go unexplained within the paradigm of the rational/animal or brain/body correlate. This paradigm can certainly explain phenomena at grosser levels of human operation but it is insufficient for explaining the possibility of these experiments. Unless man wants to avert his eyes from confronting these repeatable phenomena, he must then admit that it is not unreasonable to suppose that the map of ultimacy may be redrawn with new paths in addition to those marked by scientific rationality or institutional religion.

The newer discoveries regarding the depth of human consciousness present themselves in somewhat of a Copernican revolution that understandably finds great resistance from the secular and technocratic trend of our culture. Nevertheless, the quality of intentionality and purposeful control exemplified by the above experiments force the necessity for reexamining the limitations presumed in the cultural explanations of man's nature.

The quality and range of self-consciousness indicated by these accomplishments suggest that the former

dichotomy between natural/supernatural, mind/body and their mutual implications, can be recast ultimately as a continuum. The ordinary polarities of life discerned and reacted to at the discursive level of awareness are appreciated, however, for their value within a broader outlook on reality. Instead of pronouncing an impassable separation between the finite, transitory realm of existence and the sphere of transcendence, these levels of reality are distinguishable upon an ontological continuum that leads man from the densest restriction of matter to the transcendental experience of total awareness and control of reality.

The principle of integration for realizing this possibility is the range of human consciousness. Thus, human progress in self-knowledge would appear as a continuum of awareness involving a willful and purposeful process whereby the individual realizes in conscious succession the necessary interconnection of the modalities of awareness for finally experiencing ultimacy or the Unconditional. One may distinguish between bodily awareness and all its attendant properties and limited activities, and the range of awareness attributed to rational and scientific discursiveness with its properties, and even more distinct the vaster realm of awareness characterized by transcendence or superconsciousness. The latter achievement assumes the more constricted levels of bodily and mental operative awareness, enhancing them further in their natural activities, or else dispensing with their operation and exerting its natural power without these vehicles.

From the side of nature, its energy configurations are understood in correlation with the degree of conscious

awareness achieved by the individual. A natural isomorphism spreads between the levels of reality, the universe at large, and the actualization of the depth of consciousness. Since the ontological levels of reality relate to epistemological awareness, one's concept of selfhood would reflect this correlation. The hidden dimensions of nature's spectrum of intelligibility awaits man's immanent progress to awaken, so to speak, the proportional degree of awareness to experience them. The achievement of transcendence, the superconsciousness state, is not a temporary peak of experience (Maslow), a transitory breakthrough of intense neotic clarity (William James), that fades with time. No, the kind of transformation that describes transcendence is of such vision and power, of such noetic plenitude, that it counters all of life's predicaments continually resisting rational solutions. Transcendence is akin to a permanently ontological expansion of consciousness that preserves the potentials for bodily and rational awareness by incorporating them into a unitary experience of self-awareness. Reason cannot prove this claim. But it is self-validating because it reconciles among life's opposites and contraries the secular disvalues and dogmatic dualisms of cultural history, appraising their diverse worth now within the ultimate context of experiencing the absolute unity of being.

The experience of transcendence indentifies knower and known in an absolute unity that excludes nothing save distinctions. Reason, being not the totality of consciousness but only a limited function, cannot consistently symbolize this paradox any more than it can visualize and conceptualize light being simultaneously wave and particle,

or that electrons leap orbits without traversing the intervening space.

The esoteric solution appears ambiguous if not nonexistent to reason in its appropriate division of reality into subject and object. Unconvincing in the past to the majority, it may, in light of the reexamination of the demonstrated range of human consciousness under scientific conditions, yet present itself for renewed interest to the problem of the ultimate meaning of religious consciousness in cultural history.

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Summary and Conclusion

In our era, man's increased knowledge of the laws of the formation of the self, as well as that of the structure of the pluralistic world, have opened a future of almost unlimited new directions for cultural development. Ambiguous as these opportunities may be, there are still many who prefer to continue the symbolization provided by earlier institutional forms, forgoing the cultural impetus to reinterpret the paradoxes of experiencing a multivalent world. This statement does not imply that men are absolutely free at this moment. Ours is rather an exceptional epoch in which the knowledge and the tools for disclosing self, nature and transcendence provide man with a freedom in history that forces upon him an intense responsibility commensurate with the symbols he chooses for the ultimate meaning to his existence.

The unfinished quality of his existence is no longer an instance for permanent regret. On the contrary, it signifies rich potentials--hopefully a sense of growth and improvement which recognizes that upgrading the quality of life requires more than the superstitious belief of being born into technocratic progress. The painful chore of

removing ignorance along with the anxiety over what appears to us as contingent, personal existence, should caution one from identifying too closely with any finite paradigm, scientific or otherwise, purporting to explain the totality of life.

Man's insertion into cultural history as an unfinished being exposes the felt necessity for unconditional completion. Growth and renewal are thus sought in all possible forms. The continual rejection of the boundaries of ignorance and privation are instances of man's choosing a purposeful existence for wholeness rather than an arbitrary career in random independence. Yet the unavoidable modern feeling of the transigency of life, the impersonal relativism and senseless autonomy, so prevalent in our scientifically oriented culture are basic issues of daily existence that must be resolved in the conscious dimension of life where they meaningfully subsist. This may be why the exact configurations of the historic religious symbols have lost their communicative power to overcome the contemporary negations of life. They have knowingly limited their appeal more to the historical period in which they were formed than the cultural and existential questions of the day. One senses the disjunction between the religious content of their symbols and the contemporary lived conditions which tolerates them. The discrepancy only compounds the anguishment over finding coherent, ultimate meaning in the world.

Given our cultural preference for experimentation and experiential validation, the formation of religious consciousness can present itself on these terms. In this way, insight into ultimacy tends to be a growth process,

admitting revision as one integrates successive degrees of awareness. The possibility for explaining himself as ultimately meaningful resides, subjectively, in the inner, differentiated horizon of consciousness within which man symbolizes his final boundaries. The continual interaction with life stimulates consciousness with the experiential ground for adopting the symbols' meaning and perspective. In developing his unfinished potentials, man attempts to render an ultimate rationale to his origins, his presence in history and his future. Ordinarily, his symbols of ultimacy include an explanation of the universe as well. History shows that there is a mutual influence between his understanding of his terrestrial environment, his selfhood and his choice of religious symbols.

History also shows that in conjunction with, or even in spite of, man's daily confrontation with life, the range and content of these experiential boundaries form for him the symbolic meaning of his apprehension of ultimacy. In experiencing these symbols, he finds the irreducible significance of his existence, a meaningful existence from which he desires to see life steadily and to see it whole. This continual interaction then, individually and in community, with the boundless manifestations of life provides the cognitive and affective resources for establishing, enforcing or revising man's symbols of ultimacy. The choice is his own—as he changes so will the world around him.

The dialectical expansion of insight between consciousness and life takes time and preparation. Growth in cultural awareness is usually uneven and awkward, subject to mistakes and revisions of conviction. The dynamics of

insight, like symbolic renewal, are often best illuminated by opposing stands. The accepted cultural paradigm, for example, the current myth that coalesces many facts and feelings, judgments and values, into a unified pattern of explanatory power may preserve its self-sufficiency only at the cost of humanistic growth. A feature not to be forgotten here by historic man is that his choice of symbols may be only a partial dispensation of ultimate meaning.

Reason has a hard time with ultimates. In its effort to clarify and distinguish, it sometimes overlooks the indefinite correlation between the goal of transcendence and its symbolic articulations. Consequently, the content of religious consciousness in its mythic import and cultural value may not always be considered sacred or transcendental in its precise formulation. The symbolic structure of ultimacy may just as easily be expressed in scientific formulas as in a political statement. For example, a cultural form of man's sense of ultimacy can be expressed collectively or by a minority, situate him throughout his life or merely geographically, marshall a nation to war or be symtomatic of a fad. Whenever man suspects the whole meaning of life is at stake, he is verging into the realm of ultimacy. Religious scriptures as well as scientific pronouncements can support what H. Smith mentions: "The guise in which Transcendence appears varies with the mode of life's deficiency. Those who suffer from bondage and confinement see it as promising liberation and expansion. Those who suffer from darkness look to it for light. To those who groan under the weight of death and transitoriness it intimates eternity. To those who are restless it betokens peace."[1] While the symbolic content of

ultimacy has differed in history, its teleological universality remains constant.

In any event, the unrestricted desire to comprehend life, to experience fulfillment, however it is symbolized, impells man's consciousness to relieve his defective condition and try change, experiment with different courses of action, the goal of which supplies the evidence for purposeful motivation. The road to sounder health, better living conditions, the elimination of social privations, the vision of an increasingly humanistic culture, as well as the religious challenge of ultimate significance, implies a fundamental, teleological dynamism in man. Otherwise there would be no substantive consistency between thought and action. Likewise, without teleological principles involved in being itself, there would be no intelligible dynamis to the universe. Coherent growth in self-definition and meaningful survival in cultural existence would be impossible in a world of sheer chaos, bereft of purpose.

The Need for a Heuristic Approach to Transcendence

The recurring quest to render meaning to his existence in its totality has produced wide varieties of traditions and cultural instances, Eastern and Western, godly and godless, ritualistic or not, that specify ultimacy. From our interpretation, these varieties can be accommodated on the interior grounds of an indefinite horizon in human consciousness which attempts total realization of its nature. The thematization of ultimacy in a culture is sustained in its particular configuration of meaning by the

universal and constant imperative within man to explain his ultimate significance in actual existence. The type of symbolism which men develop to signify their commitment to higher or ultimate values and to define their authenticity varies, as we have seen, in historical perspective.

A culture rarely justifies itself entirely upon its empirical performance; it rather scrutinizes its development and sustains its commitment in light of its unrealized goals or values. Without this teleological context, without purposeful categories, there is no assurance, to say the least, of progressive attainment for man or society. And yet these categories and symbols that sustain man's cultural endeavors must bear a sense of transcendence, an eschatological dimension, if one prefers. For each and every system of ultimate meaning, in order to avoid the accusation of cultural extemporizing (and thus become a pseudo solution), must reflect the source beyond themselves to which they relate.

Herbert Richardson asserts this caution for us today: "The total cybernetic system must be fortified by an eschatological symbolism which can provide it with general goals and assist men to make the continual transitions an increasingly complex system requires. A cybernetic system determines a rate and form of change, but it does not determine the ultimate end of change. Rather it is guided by some encompassing social vision of the good society. This vision cannot be conceptually precise—for then it would be static rather than dynamic. But it must be symbolically precise if it is to give real direction to the social processes."[2]

He goes on to point out that the "guiding power of a myth or symbol" must be conceptually "vague," otherwise it cannot guide rational development. For "such a 'vague' symbol is open to continual conceptual specification; hence it is capable of providing direction to a total cybernetic society. It is conceptually imprecise, but symbolically precise. Such symbolism must be religious . . . the very transcendent character of religious eschatology is the condition of its adequacy for guiding a cybernetic society; for trans-historical symbolism always retains the 'vagueness' and conceptual openness that prevent man from expecting any absolute fulfillment in time. . . . Only religious symbolism can preserve the system from falling into an intra-historical stasis."[3]

Accordingly, the historic, traditional symbols of denominational religions, as well as those summary symbols, such as Being, Life and Consciousness, which attempt to grasp reality as a whole, may not be jettisoned, but re-mythologized in order to explicate the teleological interplay between life's experiences and the corresponding growth in self-awareness. Accepting life's experiences as the proving ground for symbolizing transcendence may now incline man from upholding a belief in ultimacy merely on the abstract logic of a dogmatic assertion. A too rigid affirmation of conceptual form misplaces the motivational basis for personal commitment upon a theoristic fixation instead of focusing the symbolic understanding upon life's meaning.

Instead, belief in transcendence can symbolize a heuristic approach to ultimate reality enabling man to find through its symbolization a convergence of interpretation

and experience that exonerates the belief. Without including a heuristic intentionality in regard to his ultimate symbols, man may lose that healthy edge of discontent that projects the critical growth process towards transcendence. By lazily compromising with the pragmatic evidence for the self-realization of his transcendent nature, man can twist his natural motivations into grotesque cultural parodies, assigning them the favor of ultimacy. In a technocratic culture where humanistic values are adumbrated or declared professionally invalid, a higher standard of living is another name of progress in self-deception. Genuine transcendence is counterfeited; human nature is devalued—for only so long.

The Practical Formation of Religious Consciousness Based upon a Teleological Praxis

History shows that man can substitute finite goals for his spiritual center of ultimate meaning and with sufficient consenses a cultural myth may emerge giving a sense of security and meaning to human existence. But given man's natural capacity for cultural transcendence, sooner or later, a process of alienation sets in. Man's consciousness has a quality of self-awareness that is wider than the highest ideals he can rationally set for himself; it is from this indefinite zone of awareness that he can criticize their meaning as finite absolutes.

Part of man's hope of survival is his continual ambivalence toward cultural paradigms that pass themselves off as ultimate concerns. Anything less than the experience of genuine transcendence, any substitute,

however fashionable or profitable, becomes eventually an agent of disillusionment. Yet the infidelity of his symbols to sustain his expectations can become a positive factor in recovering a realistic approach to ultimacy. Here the negative experience of alienation should not be wasted, but transmuted into an abiding critical attitude that tests in human experience every proposal for transcendence.

A continuous mutual clarification ought to emerge between the conscious interaction of life's experiences and their symbolic content. The gradual psychosomatic transformation resulting from this heuristic participation in life's dynamism measures itself by opposing the secular mood of contingency, relativity, temporality and random autonomy with growth in self-awareness that establishes a personal sense of order and stability with progressively higher integrative insights.

As man's inward vision increases, that is, as his development in consciousness expands toward the esoteric threshold, the lonely separation (as Monod describes it) felt in a blind, mechanical and arbitrary world is recognized as a superficial judgment taking only nature's normal flux into account and ignoring, as scientific rationality proposes, the evidence for nature's orderly processes that require teleological categories for their proper explanation.

A double resource is available to man for rediscovering the teleological principles of operation in nature: either by examing the data without the anti-teleological bias inserted into scientific methodologies; or by the inner dynamics affecting man's polymorphic consciousness in its acceptance of transcendental symbols. The first approach

falls within the domain of reason, a scientific inquiry that recognizes that the modes of evidence for teleological principles relate diversely and analogously to the level or field of reality under study. While the investigations of nature yield less than expected as they move more away from the study of man and living organisms, nevertheless, there is sufficient stability of structure and function, cohesive design and regularity of operation throughout the pluralistic universe to implicate finality and relative purpose.

As for the second approach, it must be kept in mind that the theoretical propriety of ultimate symbols, however precise and hopeful in their meaning, is, on that basis alone, insufficient to meet the critical demands of man's sense of estrangement toward himself and the world. Imperative, then, is the pragmatic exercise of the transcendental symbols. For it is only in the exegesis of testing them upon himself that man can ascertain their mediative worth. Unless the symbol initiates the personal dynamics of concrete experience, it remains hypothetical, a pure promise that is powerless to remedy the secularity of today's circumstances.

One has to embark, consequently, upon a personal experiment—an individual, critical experience of praxis. Hopefully, it will produce an evolving but integrated selfhood whose human authenticity embodies those vitalizing symbols that renew the irrepressible search for ultimate meaning. One enters into the existential implications of the symbol—its intentional structure—discovering thereby the possibility for experiencing the Unconditional, or drawing nearer and nearer to the esoteric realm, the

superconscious state, until the teleological process becomes a transforming actuality.

In this way, through the humane integration of all the levels of his being, man gains for himself, in fidelity to the emerging meaning of the transformative process, a positive identity which recognizes that he needs nothing outside the realization of his self-consciousness in order to establish fulfillment. The polarities of cultural existence are acknowledged as relatively necessary, belonging, as nature and developing culture would have it, to uneven and sometimes spontaneous stages of his growth in self-awareness. From his expanding integral vision, a certainty about the logic of transcendence guides him knowlingly through the mass of events that overtake him in daily life. In the expanding criteria of his self-consciousness, he discovers the intelligibility of the totality of things.

In his experience of ultimacy, and his unconditional freedom, man bridges the separations of the empirical and the transcendental, the secular and the sacred. In other words, he totally resolves the alienations that secularity has resigned to culture in despair. The internal harmony resulting from the integration of all his levels of being expands man's consciousness to discover in self-awareness his unity with all the manifoldness of reality. The ultimate coherence of life and the universe, the past and the future, which he already detected within the phenomenological field of his rational vision now becomes self-evident. The cognitive illuminability of this state of consciousness supercedes and guides, contextually, his freedom of thought and action, rendering stability, purpose and direction to his cultural existence.

Our limited study has shown that while the formation of religious consciousness has varied greatly in history, not every epochal form of ultimacy has been enduringly successful in establishing man's relationship to the ultimate conditions of his being. In our century, the experience of scientific consciousness, as well as the denominational forms of exoteric consciousness, do not stand up to the very conditions needed for religious consciousness to realize itself.

In opposition to these instances, the formation of religious consciousness as a self-transformative process leading to an ontologically self-integrative experience of transcendence claims its surplus of meaning goes undetectable because of the epistemological preferences of science and conventional religion. In the face of the latter's cultural dominance, the ambiguity of realizing transcendence is not a failure of intellect as it is a stimulation to consciousness to expand its experience of life beyond these limited paradigms. The ambiguity of self-transcendence would indicate a summons to purify consciousness in order to fulfill the conditions for experiencing ultimacy.

The challenge today lies in taking cognizance of those telic clues that nourish and vindicate the progressive quest for ultimate meaning. In the pursuit of this goal, the existential meaning of transcendence is not antecedent to its experience but consummatory. Man must forge those practical symbols whose personal appropriation gradually transforms and unifies his essential being and his historical existence. In their functional employment, these symbols have a provisional finality, for they

enable man to regulate and order life's experiences toward his goal—establishing a center of ultimate awareness wherein he can commit himself to its meaning as the foundation of his total self and reality.

Notes

Introduction

1. W. Dupré, *Religion in Primitive Cultures.* Paris: Mouton, 1975, p.119.
2. *Ibid.*, p. 120.

Chapter One—Mythological Beinnings

1. W. G. DeBurgh, *The Legacy of the Ancient World.* rev. ed., London: Penguin, 1953, p. 96-107.
2. E. Voegelin, *Order and History.* vol. II. U.S.A.: Louisiana State University Press, 1956-57, p. 166.
3. De Burgh, *op cit.*, p. *189-224.*
4. M. P. Nilsson, *The Mycenaean Origin of Greek Mythology.* Berkeley: University of California Press, 1932, p. 21-31.
5. W. K. C. Guthrie, *The Greeks and their Gods.* Boston: Beacon Press, 1955, p. 126.
6. C. Loew, *Myth, Sacred History, and Philosophy.* New York: Harcourt, Brace & World, 1967. p. 185-190.
7. W. Willi, "The Orphic Mysteries and the Greek Spirit," *The Mysteries Papers from the Eranos Yearbooks.* ed. J. Campbell, Princeton: Princeton Press, 1955, vol 2., p. 64.
8. M. P. Nilsson, *A History of Greek Religion.* 2nd ed. England: Oxford, 1964, p. 134-179.
9. *Iliad*, 22
10. A. W. H. Adkins, *Merit and Responsibility: A Study in Greek Values.* England: Oxford, 1960.
11. *Odyssey*, 3. 236 ff.

12. *Illiad*, 16.459 ff.
13. *Theogony*, 217.
14. *Odyssey*, 2. 100; 3.238
15. *Ibid.* 16.436 ff.; *Iliad*, 16.698,20.30
16. *Odyssey*, 11. 218 ff.
17. Loew, *op. cit.*, p. 191-94.
18. R. Lattimore, *Hesiod*. Ann Arbor: University of Michigan Press, 1978, p. 12.
19. Loew, *op. cit.*, p. 194-95.
20. N. O. Brown, *Theogony. Hesiod*. New York: Bobbs-Merrill, 1953, p. 15.
21. Nilsson, *op. cit.*, p. 180-85.
22. Lattimore, *op. cit.*, *Works and Days*, 112.
23. *Ibid.*, 51.
24. *Ibid.*, 83.
25. Nilsson, *op cit.*, p. 180-81.
26. Lattimore, *op. cit.*, *Theogony*, 116.
27. Brown remarks: "The theory won acceptance because it presented an interpretation of the cosmos that made sense to the Greeks in terms of their experience of life." *op. cit.*, p. 37.
28. H. Lloyd-Jones states that Hesiod sets Dike "in the context of the universal order guaranteed by Zeus." And again: "Dike means basically the order of the universe, and in this religion the gods maintain a cosmic order. This they do by working through nature and the human mind, and not by means of extraneous interventions." *The Justice of Zeus*. Berkeley: University of California, 1971, p. 35 and p. 161-62.
29. *Theogony*. 924.
30. *Ibid.* 25.
31. H. Lloyd-Jones, *op. cit.*, p. 35.
32. *Theogony*, 954 ff.; *Iliad*, 5.395. The determination of death belongs in a proper sense to the notion of allotment or share which the name Moira implies. This association is even brought out earlier in the *Odyssey*, 2.100, 3.238. Because of their kindship, to overcome Hades is to overcome Moira.
33. Nilsson, *The Mycenaean Origin of Greek Mythology*, p. 204.
34. B. Malinowski, "Myth in Primitive Psychology," *Magic, Science and Religion*. New York: Doubleday, 1955, p. 108.

Chapter Two—Philosophical Beginnings

1. Voegelin, *op. cit.*, p. 136-37.
2. *Metaphysics*, 984a 17; DeBurgh, *op. cit.*, ch. 4.

3. J Burnet, *Early Greek Philosophy* 4th ed. London A & C Black, 1930, p 46-50 , Aristotle, *de anima*, 411a8 states that Thales held that all things are full of the gods. The pertinent fragments of Tahles' writings as well as the other Greek philosophers may be consulted in H Diels, *Die Fragmente der Vorsokratiker* rev. by W. Kranz. Berlin 193435. Hereafter abbreviated as Fr or Frs (plural)· 1-4. Many of these fragments have been translated in Burnet's book. Cf. also *Iliad*, 14.201
4 Fr 1., W. T. Jones, *The Classical Mind A History of Western Philosophy.* 2nd ed New York Harcourt, Brace and World, 1969, p. 11-14.
5. Aristotle, *Physics*, 203b6
6. *Metaphysics*, 984a5.
7. *Ibid* 985b22.
8. H. Frankfort et al., *Before Philosophy The Intellectual Adventure of Ancient Man.* New York Penguin, 1949, p. 259.
9 Burnet, *op cit* , p 80-84, DeBurgh, *op cit.*, Ch. 5, The Greatness of Athens, p 34-189, J Harrison, *Prologomena to the Study of Greek Religion* Cambridge, 1903, Ch. 9-12.
10 A Armstrong, *An Introduction to Ancient Philosophy.* London Methuen, 1947, p 10, W. K. C. Guthrie, *A History of Greek Philosophy*, vol 1. Cambridge University Press, 1962, p. 419-31 According to P Wheelwright, Frs 1-2 concerning logos may be translated as "word" while containing the nuances of a religious and transcendental source. *The Presocratics.* New York Odyssey Press, 1966, p. 290.
11. *Metaphysics*, 986b18.
12. Frs 12-15.
13. Frs. 16-17, these mythic terms symbolize rival cosmic forces whose recurring battles, with one winning domination and then the other, sustain the world in relentless procession.
14 *Physics*, 256b24 ,*Metaphysics*, 984b15 , Frs. 15, 17-19
15. *Phaedo* 98b.
16 *Metaphysics*, 985a18-21.
17 Armstrong, *op. cit.*, p. 18-19, Aristotle, *De. Gen. & Corr.*, 314a 21, Fr. 2.
18. *Physics*, 196a36 ,*Metaphysics*, 985b19.
19. "Car, *dire* que le hasard n'est rien revient à dire qu'il est tout, qu'it est le Dieu actif des choses rien n'est indéterminé, mais tout dérive de l'indétermination." F. Mentre, *Pour qu'on lise Cournot.* Paris Beauchesne, 1927, p. 136.
20. Armstrong, *op. cit.*, p. 135, F. Copleston, *Greece and Rome*

A History of Philosophy. Vol 1. New York: Doubleday, 1962, p. 149. R. Hooykaas, *Religion and the Rise of Modern Science.* Edinburgh, 1972. Ch. 1.

21. *Metaphysics.* 987b1-2.
22. *Phaedrus.* 246e; "der eigentliche Begrunder der Teleologie in der Betrachtung der Welt." Ueberweg-Praechter, *Die Philosophie des Altertums.* Berlin: Mitter, 1926, p. 145.
23. 92c5-9; 30b-c.
24. Hooykaas, *op. cit.*, p. 3; *Timaeus.* 27d5-28; 29b3-d3.
25. 47e5 ff.
26. 29e3-30a6.
27. *Metaphysics.* 988a8-9.
28. Guthrie, *op. cit.*, p. 350.
29. *Timaeus* 92c; *Republic* 509b.
30. R. Hackforth, "Plato's Theism" in *Studies in Plato's Metaphysics.* ed. R. E. Allen London: Metheun, 1965, p. 440.
31. *Phaedo.* 82-d; the *Phaedo* is the most detailed description of philosophy as an ascesis to self-realization.
32. 1026a-33.
33. 982a-23.
34. *Metaphysics.* 1074b1-14.
35. P. Merlan, *The Cambridge History of Later Greek and Early Medieval Philosophy.* ed A. H. Armstrong, Cambridge, 1967, p. 52.
36. *Physics.* Bk III.
37. *De anima.* 431b2.
38. Copleston, *op. cit.*, p. 74.
39. *Ibid.*, p. 67.
40. *Physics.* 197b5-7.
41. "It is as a final cause that God acts on the world of mutability, and all the various changes in the universe, from the rotations of the heavens to the changes of material sublunary things, are seen as attempts by matter to approximate as far as possible to the perfection of God's eternal and immutable activity or dynamism. For Aristotle the circular movements of the planets are the most impressive manifestation of this approximation to the divine—so much so that he holds the contemplation of the movement of the stars to be one of the main sources (together with the prophetic power of the soul in dreams) of the religious impulse in man." M.J. Charlesworth, *Philosophy of Religion: The Historic Approaches.* New York: Herder & Herder, 1972, p. 13.
42. Collingwood remarks how man is brought into the very "circle

of God's knowledge" through the faculty of intelligence or *nous* which he possesses as being most characteristic of his nature. In this way, "our self-knowledge and our knowledge of the forms are participations by us in the life of God." R. G. Collingwood, *The Idea of Nature*. London. Oxford, 1945, p. 89. Hereafter quoted as IN.

43 *Metaphysics*. 107b 1-14.
44. Frankford, *op. cit.*, p. *248*.
45. F. M Cornford, *The Unwritten Philosophy*. Cambridge· 1950, p. 42.
46. Guthrie, *op. cit* , vol 1, p. 29.
47. Kirk, *op. cit* , p. 238-40.
48. Guthrie, *op. cit.*, p. 26.
49. *Timaeus*. 90a-b.
50. Loew, *op cit.*, p. 275.
51. S. H. Nasr, *The Encounter of Man and Nature*. London: Allen & Unwin, 1968, p. 54.
52. *Ibid.*

Chapter Three—Religious Consciousness and the Worldview of the Middle Ages

1. W. Ullmann, *The Growth of Papal Government in the Middle Ages* 3rd ed. London· Methuen, 1970. "From small beginnings, from an insignificant community in the capital of the Roman empire, the Church of Rome developed into the most influential and important governmental institution in the medieval period." p. 1.
2. I Cor. 12.4 ff.; Rom. 12.4; Eph. 1.23.
3. Ullmann, *op. cit.*, p. 449.
4. *Ibid* p. 446. Ullmann points out that, "the principle of functional ordering and consequently the principle of subordination is nothing else but the political formula for the teleological principle, operative only in a society that was viewed as *unum corpus Christi.*" He understands the institution of Christendom as impressing upon itself all the basic monarchical and jurisdictional features of Roman law. These aspects were also developed during the course of history and many precedents were later incorporated into modern times under international law.
5. DeBurgh mentions that the middle ages can be considered in a comprehensive survey from the fifth century to the sixteenth. But if one focuses to just the dominant period of medieval stability, the centuries are from 1100 to 1400, broadly the

same time for scholasticism. *op. cit.*, p. 441.

6. *Ibid.*, p. 442-63.
7. *Genesis* 1-2.4.
8. Theologians depicted man's plight universally as a "fall" or departure from a gratuitous level of existence that left him impaired in his primary powers of intellection and volition but fundamentally intact.
9. "credere est cum assentione cogitare." T. Aquinas, *Summa Theologiae*. II-II q. 2, a. 1. Hereafter: S.T.
10. "Unde patet quod natura nihil est aliud quam ratio cuiusdam artis, scilicet divinae, indita rebus, qua ipsae res moventur ad finem determinatum." *In Physic.* 1.13.
11. „Omne agens agit propter finem." *S.T.* I.44.4.
12. "per virtutem rationis judicans de agendis, potest de suo arbitrio judicare, in quantum cognoscit rationem finis et euis quod est ad finem et habitudinem et ordinem unius ad alterum; et ideo non est solum causa suipsius in movendo, sed in judicando." *De Veritate*. 24.1.
13. "Imperfecta autem cognitio finis est quae in sola finis apprehensione consistit, sine hoc quod cognoscatur ratio finis, et proportio actus ad finem. Et talis cognitio finis invenitur in brutis animalibus, per sensum et aestimationem naturalem." *S.T.* I-II. 6.2. "Imperfectam autem cognitionem finis sequitur voluntarium secundum rationem imperfectam: prout scilicet apprehendens finem non deliberat, sed subito movetur in ipsum." *Ibid.*
14. Armstrong mentions: "The final cause is in a way the most important and interesting of all . . . for the purposefulness of things is immanent, inside them, though ultimately directed . . . towards a transcendental end. It is a natural impulse which drives everything to try to realize its form as perfectly as possible, thus imitating the divine perfection, and to take its place in the universal order." *op. cit.*, p. 83.
15. "Sed bonum et optimum universi consistit in ordine partium eius ad invicem." *Summa Contra Gentiles* II. 39.
16. "Quia igitur principalis intentio hujus sacrae doctrinae est Dei cognitionem tradere, et non solum secundum quod in se est, sed etiam secundum quod est principium rerum et finis earum, et specialiter rationalis creaturae, ad hujus doctrinae expositionem intendentes, primo tractabimus de Deo; secundo: de motu rationalis creaturae in Deum; tertio: de Christo, quo secundum quod homo, via est nobis tendendi in Deum." *S.T.* 1.2. prologue.

Chapter Four—Early Modern Cosmology

1. Collingwood, *op. cit.*, p. 93; W. C. Dampier. *A History of Science and Its Relations with Philosophy and Religion.* 4th ed. Cambridge: Cambridge, 1948, p. 160.
2. Bruno's pantheism "gave way to a doctrine according to which the world is not divine but mechanical, implying therefore a transcendent God who designed and constructed it." *Ibid.*, p. 99-100; D. Singer, *Giordano Bruno, His Life and Thought.* New York: Basic Books, 1950, p. 28; P. Smith, *A History of Modern Culture.* Vol I, New York: H. Holt & Co., 1930, p. 44. Interestingly, Nicholas Cusanus (1401-1464) wrote about the universe in ways which sound strangely familiar today in astrophysics. The development of science at his time did not pay heed to his notions involving infinite space without any fixed points, even though Bruno quoted him extensively. E. J. Dijksterhuis, *De Mechanisering van het Wereldbeeld.* Amersterdam: 1975, p. 248 ff.
3. Collingwood, *op. cit.*, p. 99, R. G. Collingwood, *The New Leviathan.* London: Oxford, 1942, p. 253-54.
4. He regards belief in the physical reality of solid, impenetrable heavenly spheres as only a pedagogical device to aid the imagination. He prefers realistic conceptions drawn from observable facts to mathematical fictions, thus he resents the Copernican system: "Rationes cur haec summi illius Copernici, utut admodum ingeniose, et concinne excogitata cirautuum in mundanis corporibus apparentium dispositio, re ipsa veritate non correspondeat, alias sufficienter ostensuri." T. Brache, *Opera omnia.* ed. I. L. E. Dryer. Copernhagen: Libraria Gyldendaliana, 1913, II. 14.
5. Collingwood, IN, p. 101-02.
6. Thus the certainty of astronomy equals that of physics and metaphysics, meaning that the same laws that "apply to terrestrial physics must be applicable also to celestial physics—that the latter must not be developed from independent hypotheses." R. M. Blake, et al., *Theories of Scientific Method, The Renaissance through the Nineteenth Century.* Seattle: University of Washington, 1960, p. 39; also: ". . . no interchesus tamen nec ab *iis* argumentis geometricis, physicis vel metaphysicis, quae tibi suppeditantur ab ipsa diexodo disciplinae propriae super rebus, ad altiores illas disciplinas pertinentibus, dummodo nullam principii pertitionem admisceas." J. Kepler, *Opera omnia.* ed. C. Frisch. Frankfurt: Heyder and

Zimmer, 1858-1871. VI, p. 121; cf. G. Holton, "Johnnes Kepler's Universe: Its Physics and Metaphysics," *American Journal of Physics*, XXIV (1956) p. 340-51.

7. *"La Filosofia e scritta in questo grandissimo libro che continuamente ci sta aperto innanzi agli occhi, io dico l'universo; ma non si puo intendere se prima non s'impara a intender la lingua, e conoscer' i caratteri, ne' quali e scritto: e scritto in lingua matematica, e i caratteri son triangoli, circhi, ed altre figure geometriche."* G. Galilei, Il Saggiatore, *Le Opere di*, ed. Barbera. Firenzi, 1933, VI, p. 232.
8. A. Koyre, "Galileo and Plato, " *Journal of History of Ideas*, 4 (1943), p. 400-28.
9. E. A. Burtt, *The Metaphysical Foundations of Modern Physical Science*. New York: Harcourt, Brace. 1932, p. 81; H. Butterfield, *The Origins of Modern Science*. New York: Macmillan, 1951, p. 83.
10. Kepler, for instance, found it a struggle for years to admit that the ecclesiastical endorsement of uniform and circular motions was not the observable case. His patient observations for almost a decade finally convinced him to postulate a non-uniform motion in elliptical orbits of the heavenly bodies. Hooykaas, *op. cit.*, p. 35-36.
11. *op. cit.*, p. 103.
12. "Tout ce genre de causas qu'on a contume de tirer de la fin n'est donc d'aucun usage dans les choses physiques et naturelles." *Oeuvres*, ed. C. Adam et P. Tannery, Vol. VII, Paris: Cerf, 1904, p. 55.
13. J. Collins, *God in Modern Philosophy*. Chicago: H. Regnery, 1954, p. 68.
14. T. Hobbes, *English Works*.Vol I. London: John Bohn, 1839, p. 131-32.
15. J. Collins, *op cit.*, p. 96; *Leviathan*, ed M. Oakeshott. Oxford: Blackwell, 1946, p. 70-71, 77.
16. F. Kilgour, "William Harvey's Use of the Quantitative Method," *The Yale Journal of Biology and Medicine*, XXVI (1954), p. 416-16; Wm. Kane et al, *Science in Synthesis*. Dubuque; Brown, 1953, p. 205.
17. Burtt, *op. cit.*, p. 73-80; Collingwood, IN, p. 102-05.
18. "Tamquam virgo Deo consecrata, nihil parit." *De Dignitate et Augmentis Scientiarum*. I. III, cf. Londini: Havilland, 1638.
19. "Bacon's insistence on the use of induction, together with the role he assigned to experiment in the discovery of causes, has led him to be hailed as the father of inductive or experimental philosophy. Such a title, however, should not be understood

in a strong empiricist sense, as though there were no rationalist elements in Bacon's system. The ideal of science he had formulated, in fact, was even more Aristotelian than Aristotle's, in that he was searching for certain and infallible knowledge through causes, which he believed existed in the physical world, thereby evidencing a strong realist commitment, and which he was also convinced could be known by men, and this rather quickly once they got on to the proper method." Wm. A. Wallace, *Causality and Scientific Explanation.* Vol. Two, Ann Arbor: University of Michigan Press, 1974, p. 78.

20. Bacon's method was directed against Aristotle's procedures—the "old" organon, whence Bacon's title: The New Organon. His methods are best contrasted with the rationalism of Descartes. Cf. V.E. Smith, *Science and Philosophy.* Milwaukee: Bruce, 1965, p. 119.
21. Collins, *op. cit.*, p. 95.
22. *Novum Organon*, bk. 2, 2, p. 168. Francis Bacon, *The Works of Francis Bacon.* Edited by J. Spedding, R. Ellis and D. Heath. 15 vols. New York: Hurd & Houghton, 1869.
23. F. L. Baumer, *Religion and the Rise of Scepticism.* New York: Harcourt, Brace and World, 1960, p. 126.
24. E. M. Klaaren, *Religious Origins of Modern Science.* Grand Rapids: Eerdmans, 1977, p. 91-104.
25. Hooykaas, *op. cit.*, p. 68.
26. A. R. Hall, *The Scientific Revolution 1500-1800.* 2nd ed., Boston: Beacon, 1962, p. 194-95.
27. Robert Boyle, *The Works of the Honourable Robert Boyle.* ed. T. Birch.Vol. V, 6 vols., London, 1672, p. 518-20.
28. Burtt, *op. cit.*, p. 193-94.
29. Boyle, *op. cit.*, IV, p. 362.
30. Klaaren, *op. cit.*, p. 154-55.
31. Boyle, *op.cit.*, II, p. 39.
32. *Ibid.*, V, p. 163.
33. Baumer, *op. cit.*, p. 79.
34. Burtt, *op. cit.*, p. 166.
35. Klaaren, *op. cit.*, p. 165.
36. Boyle, *op. cit.*, IV, p. 400.
37. Burtt, *op. cit.*, p. 194.
38. Boyle, *op. cit.*, III, p. 516.
39. Klaaren, *op. cit.*, p. 171.
40. Boyle, *op. cit.*, V, p. 682.
41. A. Koyre, *Newtonian Studies.* Chicago: University of Chicago Press, 1968, p. 7.

42. G. Buchdahl, *Metaphysics and the Philosophy of Science.* Cambridge: MIT Press, 1969, p. 54.
43. *Four Letters from Sir Isaac Newton to Dr. Bentley.* (London, 1756); reprinted by S. Horsley in the *Opera omnia of Newton.* Vol. IV, (London, 1972).
44. I. Newton, *Opticks.* New York: Dover Publishers, 1952, p. 400. (Reprinted from the 4th ed. London, 1730).
45. Cf. F. Cajori, *Sir Isaac Newton's Mathematical Principles of Natural Philosophy.* Berkeley: University of California Press, 1946, p. 669.
46. J. H. Randall, *The Making of the Modern Mind.* Boston: Houghton Mifflin, 1940. rev. ed. p. 484.
47. Locke does not dispute the existence of causal activity. His skepticism focuses on an issue already mentioned by Hobbes and later Hume, that of necessary connection. On the one hand, Locke recognizes that it can be "constantly observed" that "like changes will for the future be made in the same things, by like agents, and by the like ways." *An Essay Conderning Human Understanding.* ed. A.C. Fraser, Great Books Ed., Chicago: Encyclopaedia Britannica, 1952, vol. 35, bk. 2, ch. 21, n. 1. But he's ultimately agnostic about explaining the manner of causal operation since he is unable to discern any necessary connection between the simple ideas that coexist in the same subject.
48. Locke tells us: "Several effects come every day within the notice of our senses, of which we have so far sensitive knowledge: but the causes, manner, and certainty of their productions, for the two foregoing reasons, we must be content to be very ignorant of. In these we can go no further than particular experience informs us of matter of fact, and by analogy to guess what effects the like bodies are, upon other trials, like to produce. But as to a perfect science of natural bodies, (not to mention spiritual beings), we are, I think, so far from being capable of any such thing, that I conclude it lost labour to seek after it." *Ibid.* chap. 3, n. 29.
49. With Locke we have a new intensity in worrying about his inherited dichotomy between one, the brute fact or acceptance of natural necessity observable to the senses, and two, the lack of knowledge of this necessity, which seems to imply its absence in nature. Since, for him, we lack rational insight into causal connections, he is forced, almost in desperation, to posit divine aid to release the tension. *Ibid.* Bk. 4, ch. 3, n. 28.
50. Locke's discouragement about certain knowledge finally makes

him dismiss the possibility of true scientific statements about nature: " . . . this way of getting and improving our knowledge in substances only by experience and history, which is all that the weakness of our faculties in this state of mediocrity which we are in this world can attain to, makes me suspect that natural philosophy is not capable of being made a science." *Ibid.*, bk. 4, ch. 12, n. 10.

51. Collins, *op. cit.*, p. 97-106.
52. Hume is less timid than Locke in taking the empirical tradition to its logical extreme. Baumer points out that "men had no reliable evidence," as far as Hume was concerned, "for miracles, personal immortality, or even the idea of a First Cause." *op. cit., p. 95.*
53. *The Works of George Berkeley, Bishop of Cloyne.* ed. A. A. Luce and T. E. Jessop, 9 vols. Edinburgh: T. Nelson & Sons, 1948-57. De Motu, n. 35, vol. 4, p. 40.
54. *Ibid.*, n. 34, p. 40.
55. *Siris*, n. 285, *Works*, vol. 5, p. 133.
56. *Ibid.*, n. 293, p. 136.
57. Great Books Ed., vol. 35, n. 107, p. 434.
58. "We cannot make even one single step in accounting for the phenomena, without admitting the immediate presence and . . . action of an incorporeal agent, who connects, moves and disposes all things according to such rules . . . as seems good to him." *Siris*, n. 247, 237, p. 118, p. 114.
59. Hooykaas, *op. cit.*, p. 24-25.
60. Great Books Ed. (L. A. Selby-Bigge), Chicago: Encyclopaedia Britannica, 1952, vol. 35, sect. 7, pt. 2, n. 59, p. 476.
61. Bk. 1, pt. 3, sect. 3, Everyman's Library Ed., New York: E. P. Dutton, 1911, 2 vols, vol. 1, p. 82.
62. Hume cannot ignore the common belief in a powerful intelligent creator of the universe. But he agrees with Bacon and Hobbes that this tendency in human nature arises from the nonrational, emotional springs within man. Collins thinks that "Hume traced popular religion to the passions of hope, fear, and self-interest, which function in a religious form through one's thought of being in the presence of an overwhelming and intangible power . . . he denied that moral relations can be demontrated or moral decisions influenced by reference to the remote diety of speculative belief." Collins, *op. cit.*, p. 121-22.
63. "Sir Isaac Newton and his followers have also a very odd opinion concerning the work of God. According to their doctrine God Almighty wants to wind up His watch from time to time: otherwise it would ceace to move. He had not, it seems, suffi-

cient foresight to make it a perpetual motion. Nay, the machine of God's making is so imperfect, according to these gentlemen, that He is obliged to clean it now and then by an extraordinary concourse, and even to mend it, as a clockmaker mends his work; who must consequently be so much the more skillful a workman, as He is oftener obliged to mend His work and to set it right. According to my opinion, the same force and vigour remain always in the world, and only passes from one part of matter to another, agreeably to the laws of nature, and the beautiful pre-established order." *The Leibniz-Clarke Correspondence, together with extracts from Newton's Principia and Opticks.* ed with introduction and notes by H. G. Alexander. New York: Philosophical Library, 1956, p. 11.

64. *Ibid.* p. 15-17.
65. Butterfield, *op. cit.*, p. 125.
66. "Created substances depend on God who conserves them and also produces them continually by a kind of emanation, as we produce our thoughts." *Discourse on Metaphysics*, sect. 14, ed. P. G. Lucas and L. Grint. Manchester, 1953.
67. *Immanuel Kant's Critique of Pure Reason.* trans. N. K. Smith. London: Macmillan, 1929; reprint ed. New York: St. Martin's Press, 1965, Bxvi, p. 22.
68. *Ibid.*, Bxviii, p. 23.
69. *Ibid.*, Bxx, p. 24.
70. *Ibid.*, B714-15, p. 560.
71. Buchdahl, *op. cit.*, p. 524.
72. *Ibid.*, p. 527: "It is as though Kant was saying that the 'transcendental illusion' had to be incurred by us necessarily, as rational beings, whilst at the same time inviting us to remain ever-conscious of the logical nature of this illusion, in order to prevent us from endowing the 'object in the idea' with properties that must inevitably make it problematic. And this is the very core of Kant's method: the 'critical constraint,' or the insulation of the basic key-concepts of traditional philosophy and natural theology from an ontological anchorage which—in Kant's eyes—does not actually have (or at least: cannot be known to have) any such foundations either in systematic experience generated by reason (as in the present case), or in elementary experience in relation to the understanding."
73. *Prolegomena to any Future Metaphysics that will be able to present itself as a Science.* 1783; trans. P. G. Lucas. Manchester, 1953; 57, p. 124. Kantian analogy operates very differently from, say, Aristotelean or Thomistic analogy. The latter authors

base analogy upon the causal relation among existents and can thus employ a causal analogy as an existential inference to God. For Kant analogy is a substitute for causality, replacing causality where it cannot function To speak of symbolic import does not imply, for Kant, any constitutive reference to real things. Collins remarks "The analogical role of the idea of God is not to lead us to inferential knowledge about the divine being but only to supply a noetic condition for increasing our knowledge of the natural world Analogy divorced from a causal foundation has only a symbolical import in speculative matters, giving access to the structure of human subjectivity rather than to the existential act of God's being " *op cit* , p 190.

74 *Critique of Practical Reason*, 1788 trans L W Beck, Chicago University of Chicago Press, 1949, p 126

75 E A Burtt, *Types of Religious Philosophy* Evanston Harper & Row, 1939, p 266

76 E N da C Andrade, *An Approach to Modern Physics* New York Doubleday, 1957, p 259

77 Randall, *op cit* , p 255

78 C Becker, *The Heavenly City of the 18th-Century Philosophers* New Haven Yale University Press, 1959, p 58

79 Randall, *op cit* , p 395

Chapter Five—A Prelude for Recapitulating the Story of Teleology

1 R H Tawney, *Religion and the Rise of Capitalism.* New York Penguin Books, 1947, p 17

2 L Feuer, *Spinoza and the Rise of Liberalism* New York Harper, 1957, p 243

3 F W Matson, *The Broken Image* New York Doubleday, 1964, p 12

4 "Ostendimus . . naturam propter finem non agere " B Spinoza, *Opera* ed Van Vloten & Land. Nijhoff Hagae Comitum, 3rd ed 1893, vol 1 Ethic Pars Quart Praef

5 "omnes causas finales nihil nisi humana figmenta esse . . Naturam omnino evertere Nam id, quod revera causa, ut effectum considerat, et contra " *Ibid.*, Ethic. Pars I, Appendix

6 J Bronowski, *The Common Sense of Science* Cambridge Harvard University Press, 1955, p 46 "The view became current that all the operations of nature, all the fabric of the created universe, could be reduced to the behaviour of minute particles of matter, and all the variety that presented itself to human experience could be resolved into the question of the

size, the configuration, the motion, the position and the juxtaposition of these particles." H. Butterfield, *op. cit.*, p. 120.

7. A. C. Crombie, *Medieval and Early Modern Science*. Vol II, New York: Doubleday, 1959, p. 313-14.
8. Baumer, *op. cit.*, p. 71-72. The author remarks that "Beneficence, in contrast to charity, emphasized, not primarily almsgiving, which implied acceptance of the status quo, but a vigorous assault on society's abuses. It was also frequently construed to mean the displacement of piety, or the selfish motive of personal salvation, by unselfish labor for the happiness of the human race in the world. The philosophers had no monopoly on humanitarian reform in the eighteenth century, but they were in the vanguard of the movement and clearly played a larger role in it than the clergy.",
9. In addition, "The machine concept also took all the "qualities" and values out of nature, with the result that it was no longer easy to see divine-ethical signatures in it, nor, indeed, to grasp its teleological significance for man. Thus, divine activity in nature was significantly reduced if not eliminated." *Ibid.*, p. 85.
10. T. Huxley, *Darwin, Marx, Wagner*. Boston: Little, Brown, 1941, p. 69.
11. Matson, *op. cit.*, p. 27.
12. E. Cassirer, *An Essay on Man*. New York: Doubleday, 1953, p. 38.
13. J. Bury, *The Idea of Progress*. New York: MacMillan, 1932, p. 332.
14. Matson, *op. cit.*, p. 24-25; P. F. Boller, Jr., *American Thought in Transition: The Impact of Evolutionary Naturalism, 1865-1900*. Chicago: Rand McNally, 1969, ch. 3.
15. Darwin was reacting against the taxonomy inherited from the previous century drawn up by the biologist, Carl Linnaeus (1707-1778). Hall points out that "the confidence with which he wrote as though personally present at the Creation was the more acceptable (in that, in all respects, it reassured the somewhat conventional religious conscience of the age) because it counteracted the scientific agnosticism of Voltaire and the French philosophes." Interestingly, later in his career, Linnaeus abandoned the idea of immutability of species, even though this argument continued to be prevalent into Darwin's period. Hall, *op. cit.*, p. 295. *Life and Letters of Charles Darwin*, ed. by F. Darwin. New York: Appleton, 1887, Vol I.
16. C. R. Darwin, *The Origin of Species, by Means of Natural Selection, or The Preservation of Favored Races in the Struggle*

for Life. (1859) 6th ed. London: Oxford, 1902, p. 63; F. Darwin, *op. cit.*, II, p. 229-30.

17. F. Darwin, *op. cit.*, I, p. 68.
18. C. R. Darwin, *Descent of Man and Selection in Relation to Sex.* 2 vols. New York: Appleton, 1871. ch. 3. Eiseley remarks that "Darwin postulated his theory and extended it to man without having available as evidence a single subhuman fossil by which, on the basis of his theoretical views, he could have satisfactorily demonstrated the likelihood of man's realtionship to the world of the subhuman primates." L. Eiseley, *Darwin's Century.* New York: Doubleday, 1958, p. 256.
19. A. R. Wallace, *Darwinism.* London: Macmillan, 1889.
20. T. H. Huxley, *Methods and Results: Essays.* London: Appleton, 1893, p. 130-165.
21. W. G. Sumner & A. G. Keller, *The Science of Society.* New Haven: Yale University Press, 1927. Vol. I., p. 40-41.
22. J. Barzun, *Darwin, Marx, Wagner.* Boston: Little, Brown, 1941, p. 69.
23. Darwin, *op. cit.*, p. 559.
24. H. Spencer, *Social Statics, or the Conditions Essential to Human Happiness.* (1850) New York: Appleton, 1865, p. 32.
25. T.H. Huxley, *Evolution and Ethics.* New York: Appleton, 1896, p. 81-83.
26. F. Darwin, *op. cit.*, I, p. 282.
27. As Boller points out, one of Darwin's most formitable followers, Asa Grey, Harvard Professor of Natural History, who in 1860 wrote a stunningly favorable review of *Origin*, nevertheless, tried continually, in spite of the author's disclaimers, to place evolution within the context of teleology. Boller, *op. cit.*, p. 9-10.
28. Randall, *op. cit.*, p. 502; "We seemed to ride triumphant on an ocean of new life and boundless possibilities. Natural Selection was to be the master-key of the universe; we expected it to solve all riddles and reconcile all contradictions. Among other things it was to give us a new system of ethics." F. Pollock, *Lectures and Essays by the Late William Kingdom Clifford.* London, 1879, Vol. I, p. 33.

Chapter Six—The Collapse of Belief in Progress: Modernity Reinterpreted as a Secular Universe Founded upon Chance

1. A. Einstein, *Out of My Later Years.* New York: Philosophical Library, 1950, p. 101.
2. Dampier, *op. cit.*, p. xix.

3 K Pearson, *The Grammer of Science* New York Meridian Books, 1957 ed, p xiv
4 Einstein, *op cit*, p 102
5 *Ibid*, p 229-30
6 L DeBroglie, *The Revolution in Physics* New York Noonday Press, 1953, p 126
7 W Heisenberg *The Physicist's Conception of Nature* New York Harcourt, Brace, 1958, p 42
8 J Sullivan, *The Limitations of Science* New York Mentor Books, 1949, p 20
9 J R Oppenheimer, *Science and the Common Understanding* New York Simon and Schuster, 1954, p 62
10 Matson, *op cit*, p 133, DeBroglie, *op cit*, p 218 19.
11 N Bohr, *Atomic Theory and the Description of Nature* Cambridge Cambridge University Press, 1934, p 22ff
12 B Russell, *Mysticism and Logic* New York Doubleday, 1957, p 45, 54
13 J Lewis, ed, *Beyond Chance and Necessity* New Jersey Humanities Press, 1974, p ix
14 W H Thrope, *Purpose in a World of Chance* London Oxford, 1978, p 9
15 *Ibid*

Chapter Seven—A Critique of Chance as the Ultimate Meaning of Reality

1 J Monod, *Le Hasard et la Nécessité* Paris Editions du Seuil, 1970, p 127 "Le hasard pur, le seul hasard, liberté absolue mais aveugle, à la racine même du prodigieux édifice de l évolution cette notion centrale de la biologie moderne n'est plus aujourd'hui une hypothèse, parmi d'autres possibles ou au moins concevables Elle est *la seule* concevable, comme seule compatible avec les faits d'observation et d'expérience Et rien ne permet de suposer (ou d'espérer) que nos conceptions sur ce point devront ou même pourront être révisées "
2 A Nason and R L Dehaan, *The Biological World* New York John Wiley and Sons, 1973, p 656
3 Monod, *op cit*, p 195 "L'homme sait enfin qu'il est seul dans l'immensite indifferente de l'Univers d'ou il a emerge par hasard "
4 B Rensch, "Polynomistic Determinations of Biological Process," *Studies in the Philosophy of Biology* Edited by F J Ayala and T Dobzhansky London Macmillan, 1974, p 241 54

5 "La pierre angulaire de la méthode scientifique est le postulat de l'objectivité de la Nature le postulat d'objectivité est consubstantiel à la science " *op cit* , p 32-33
6 " le refus systématique de considérer comme pouvant conduire à une connaissance "vraie" toute interprétation des phénomènes donnée en termer de causes finales, c'est-à-dire de "projet " *Ibid*
7 H Skolimowski, "Problems of Rationality in Biology " Ayala and Dobzhansky, *op cit* , p 205-23
8 E Boesiger, "Evolutionary Theories After Lamarck and Darwin," Ayala and Dobzhansky, *op cit* , p 40
9 Ayala and Dobzhansky, *op cit* , p 361
10 *Ibid* p 218 23
11 Cf J W N Sullivan, *The Limitations of Science* New York Mentor Books, 1949, p 126
12 W H Thrope, *Animal Nature and Human Nature* London Methuen, 1974, p 19
13 In C W Waddington, *Towards a Theoretical Biology 3 Drafts* Edinburgh Edinburgh University Press, 1970, p 120
14 J Bronowski, "New Concepts in the Evolution of Complexity," *Synthese* 21 (1970) p 243
15 L Bryson, ed *An Outline of Man's Knowledge of the Modern World* New York Doubleday, 1960, p 52
16 J H Woodger, *Biological Principles* London Kegan Paul, Trench, Trubner, 1929, p 263
17 L von Bertalanffy *Problems of Life* London C A Watts, 1952, p 20
18 E W Sinnott, *Matter, Mind and Man* New York Harper, 1957, p 42 Also E S Russell, *The Directiveness of Organic Activities* Cambridge Cambridge University Press, 1945
19 Sullivan, *op cit* , p 126
20 B J Bolen, *Existential Thinking* New York Herder & Herder, 1971, p 74
21 Ayala and Dobzhansky, *op cit* , p 222 23
22 A Katchalsky emphasizes that to understand the hierarchy and complexity in living organisms, one must reach beyond their physicochemical rudiments Function, for him, is more than the product of structure Besides structure, there is a principle of organization that expresses the living texture of cells " bacterial cells may be desiccated under the condition of high vacuum and liquid air temperature to a dry lyophilised powder The bacterial powder has no metabolic activity and is dead to all intents and purposes, except that when water is added and the temperature is raised, the cells revive and begin

to metabolise and reproduce. Living cells are, therefore, not only loose dissipative structures in the continuous medium of a test tube, but a dynamic pattern superimposed on a fixed network, the organization of which is dictated by the genetic code. Thus, the flow structures of cells are confined to preordained limits which represent the evolutionary history of the species." A. Katchalsky, "The Isodynamics of Flow and Biological Organization," *Zygon*, 6 (1971), 23.

23. Ayala and Dobzhansky, *op. cit.*, p. 219.
24. G. Santayana, *The Realm of Matter.* New York: Scribner's, 1930, p. 94.
25. *Ibid.*, p. 99.
26. H. Smith, *Forgotten Truth.* New York: Harper, 1976, p. 6-7.

Chapter Eight—Preliminary Remarks

1. H. K. Schilling, "A Human Enterprise," *Science*, 127 (1958), 1324.
2. Thomas Kuhn points out that scientists tend to continue to make sense of new data in terms of the prevailing paradigm of explanation, until an alternative mold suddenly makes better sense. He thinks that the choice between alternative explanations may not always be determined by research criteria: "Though each may hope to convert the other to his way of seeing his science and its problems, neither may hope to prove his case. The competition between paradigms is not the sort of battle that can be resolved by proofs. . . . Before they can hope to communicate fully, one group or the other must experience the conversion that we have been calling a paradigm shift. Just between it is a transition between incommensurables, the transition between competing paradigms cannot be made at a step at a time, forced by logic and neutral experience. Like a gestalt switch it must occur all at once, (though not necessarily in an instant) or not at all." T. Kuhn, *The Structure of Scientific Revolutions.* Chicago: University of Chicago Press, 1962, p. 147-49.
3. L. Mumford, *The Pentagon of Power.* New York: Harcourt, Brace, Jovanovich, 1970, p. 331.

Chapter Nine—The Ambiguity of Secular Autonomy

1. R. L. Rubenstein, *After Auschwitz.* Indianapolis: Bobbs-Merrill, 1966, p. 204-05.

Rubenstein, while addressing himself to the religious implications of World War II, especially the Jewish tragedies, sides with the existentialists—like Camus and Sartre—in their assertion that there is no ultimate meaning to existence

2. J. Wild, *Existence and the World of Freedom.* Englewood Cliffs, N.J.: Prentice-Hall, 1963, p. 27-28.

Chapter Ten—The Situation: A Search for the Rediscovery of Transcendence

1. R. N. Bellah, *Beyond Belief.* New York. Harper & Row, 1970, p. 42.

Chapter Eleven—Understanding the Teleology of Religious Consciousness

1. The credit for this distinction may be found in the profound study by F. Schuon, *De L'Unite Transcendante des Religions.* Gallimard, 1948.
2. P. Tillich, *What is Religion?* New York Harper & Row, 1969, p. 162.
3. Maslow, *op cit*, p. 24-25.
4. R. N Bellah, "Transcendence in Contemporary Piety," *Transcendence* H W Richardson & D R. Cutler, eds. Boston Beacon Press, 1969, p. 93
5. Tillich, *op cit*, p. 165.
6 W C. Smith, *Problems of Religious Truth.* New York Scribner's, 1967, p. 16-17.
7. H. R Richardson, "Three Myths of Transcendence," *op cit.*, Richardson & Cutler, p. 111-12 The social dimension, as Richardson portrays it, is not neglected but enhanced "To speak of the completeness and sufficiency of every man does not mean that men shall become more isolated and separated from one another. It means the possibility of a new kind of human community If, for example, I do not need another in order to complete my own identity, I can see the other for what he really is in himself rather than simply for what he is that correlates with my own needs I can now love and affirm him as a unique friend. . . . Our social experience could then become multiplicative rather than just compensatory." *Ibid*, p 112.

Chapter Twelve—The Teleological Clues for Rediscovering Transcendence

1. E. & A. Green, *Beyond Biofeedback*. California: Delacorte Press, 1977, p. 197-98; Also: E. & A. Green, "The Ins and Outs of Mind-Body Energy," *Science Year: The World Book Science Annual*. Chicago: Field Enterprises Education Corp., 1974, p. 142-43.
2. Green, *Beyond Biofeedback*, p. 200-01.
3. *Ibid.*, p. 205.
4. Green, *Science Year*, p. 137.
5. E. Green, *Biofeedback for Mind-Body Self-Regulation: Healing and Creativity*. Kansas:The Menninger Foundation, 1971, p. 23.
6. Green, *Beyond Biofeedback*, p. 209.
7. *Ibid.*, p. 210-11.
8. D. Boyd, *Swami*, New York: Random House, 1976, p. 91-93.
9. *Ibid.*, p. 93.

Chapter Thirteen—The Implications for Revising the Boundaries of Consciousness

1. On the basis of the Menninger experiments and further research, Dr. Green, the Director of the experiments, rejected the limited model of human nature implied by the Pavlovian "conditional learning" and the more recent Skinnerian "operant conditioning" interpretation. Instead, he proposed to understand the body as "only the densest section of a 'field of energy' that includes both body and mind. It is interesting to remember that our bodies, like everything else in the universe, are electromagnetic fields with swarms of particles as dense portions. We are almost entirely empty space, although we see ourselves and all nature as solid matter because that is the way we were constructed by evolution to see. . . . For the mind is an energy structure, and all matter, whether physiological or nonphysiological, is a matrix of energy that is somehow related to mind. In every thought and in every cell, we are part of the general field, but we are normally unaware of this because we are not conscious of our own unconscious." He further recognizes that the source for any energy alteration lies ultimately in a non-mind/body principle: ". . . the psycho-physiological principle, or its expression in the psychosomatic unity of mind and body, is manipulated by volition which at present is of indeterminate origin, but which at least exhibits some of the characteristics

of metaforce (i.e., a 'force' transcendant to the mind-body system itself)." Green, et al., *op. cit.*, p. 14-15; Green, *Science Year*, p. 143-146; also, E. Green & A. Green, "On the Meaning of Transpersonal: Some Metaphysical Perspectives," *Journal of Transpersonal Psychology*, 3(1, 1971), 27-41.

2. Wm. James, *The Varieties of Religious Experience.* New York: New American Library (reprint of 1902 edition), 1958, p. 298.
3. F. Capra, *The Tao of Physics.* California: Shambhala Publishers, 1975, p. 68-69.
4. D. Bohm & B. Hiley, "On the Intuitive Understanding of Nonlocality as Implied by Quantum Theory," *Foundations of Physics*, 5 (1975), p. 96, 102.

Chapter Fourteen—Consciousness and the Order of Nature

1. F. P. Wigner, *Symmetries and Reflections, Scientific Essays.* Cambridge: MIT Press, 1970, p. 172.
2. P. Thompkins & C. Bird, *The Secret Life of Plants.* New York: Harper & Row, 1973, p. 10.
3. *Ibid.*, p. 12.
4. *Ibid.*
5. W. Penfield, *The Mystery of the Mind: A Critical Study of Consciousness and the Human Brain.* Princeton: Princeton Univeristy Press, 1975, p. 79-81.

Chapter Sixteen—Summary and Conclusion

1. H. Smith, "The Reach and the Grasp: Transcendence Today," Richardson & Cutler, *op. cit.*, p. 6.
2. H. Richardson, *Toward an American Theology.* New York: Harper & Row, 1967, p. 24.
3. *Ibid.*

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CURRICULUM

Justin O'Brien was born October 3, 1932 in Chicago, Illinois, USA. He received his B.A. from Notre Dame University in 1956. He attended St. Albert's College, receiving an M.A. in Philosophy in 1964, and an M.A. in Theology from Marquette University in 1970. He completed the doctoraal at Nijmegen in 1972. He has taught at several Midwestern universities and is currently on the faculty of the Himalayan International Institute in Pennsylvania.

SAMENVATTING

Naar een theorie betreffende godsdienstig bewustzijn,
met betrekking tot het begrip,
dat de Westerse mens heeft van de natuur, de uiteindelijkheid
en de studie van uiteindelijke oorzaken.

door Justin O'Brien

Deel I: De natuur en de uiteindelijkheid als onderwerp in de geschiedenis van het Westen.

Men kan een constant zoeken naar uiteindelijke betekenis vinden in de getuigenis van de intellectuele en culturele geschiedenis van de Westerse mens (cultuur wordt in dit geval bedoeld als symbool van de totaliteit van het menselijk leven). Van vroege Helleense gemeenschappen tot onze huidige kernatomische en technologische maatschappij vindt men in het bewustzijn van de mens een onbeperkte wens om een fundamentele verklaring van het bestaan te geven. De mens wenst zich een godsdienstig bewustzijn te vormen.

In de vermenselijking van deze weerkerende taak, openbaren het ontluiken van het denken en het doen het doel als een intrinsiek principe. Gedurende het proces van vervolmaking van zijn natuur wordt een teleologische orientering vis a vis de werkelijkheid verondersteld in verband met de zelf-realizatie van de mens. De mens is een doelbewust wezen. Hij begrijpt zijn natuur door de keuze en toepassing van het middel en het einddoel. Het groeiend zelfbewustzijn van wat er van hem vereist wordt, om een betekenisvol bestaan te leiden, keert tot hem terug in teleologische vorm. Op deze wijze opent de transformatie van zijn biologisch en intellectueel bestaan verschillende, maar opeenvolgende levenservaringen, welke de mens zich eigen maakt, ten einde richting te geven aan zijn groei als menselijk wezen.

Bovendien ziet men in de loop van de culturele geschiedenis, dat het zoeken en de strijd van de mens om een scheppend leven en uiteindelijke betekenis zich steeds opnieuw meer specifiek uitdrukt. Het bestendigen van zijn begrip van de totaliteit van het leven, waarin hij een groep symbolische vormen en handelingen bevestigt, die hem verbinden met de uiteindelijke voorwaarden van zijn bestaan, zijn immer opnieuw herzien. De mens heeft te midden van de beweging van de culturele veranderingen, die de verschillende perioden van de Westerse geschiedenis inluidden, steeds gezocht naar uiteindelijke betekenis. Deze dissertatie tracht in feite aan te tonen, dat bij de betekenisvolle formulatie van godsdienstig bewustzijn altijd specifieke en toch veranderlijke connecties tussen de ideen over de natuur, de uiteindelijkheid en God bestaan, en dat de connecties tussen deze ideen en de invloed hiervan op de vorming van het religieuze bewustzijn overeenkomstig begrepen worden in een teleologische opzet.

Onze methode van aanpak is om de geschiedkundige reeks van pogingen van de mens om uiteindelijkheid te formuleren als een bepalende analyse, te onderzoeken. Onze werkwijze houdt dus in die ruime gebieden van cultureel belang, die toestaan dat uiteindelijke betekenis in algemene zin gezien wordt; wij rangschikten ons onderzoek naar het streven naar godsdienstig bewustzijn van de mens in chronologische orde, beginnend met de Hellenistische en eindigend met onze eigen tijd. Door ons aan deze totale zin te houden worden wij geleid door die voorbeelden van Westerse cultuur, die ons helpen toespitsen op de connectie tussen de ideen over de natuur, de uiteindelijkheid en God. Door de symbolische schok van deze ideen op het zelfbewustzijn van de mens te bespreken ontdekken wij hun belangrijkheid voor de vorming van religieus bewustzijn en vice versa. Wij beweren, dat de symbolen, die de mens schept om de werkelijkheid duidelijk te maken:

1. zijn verbintenis met de natuur bemiddelen
2. zijn verbintenis met het geheel van de werkelijkheid, zoals hij deze begrijpt, bemiddelen
3. zijn teleologische vastberadenheid om te bestaan in en door deze symbolen, inhouden.

Door deze brede gebieden van culturele geschiedenis aan te duiden, beginnen wij de manifestatie van zekere modaliteiten van bewustzijn te zien. De mens heeft zekere modellen van begrip gebruikt om de betekenis van het leven weer te geven, zoals de mythe, philosofie, de wetenschap en de godsgeleerdheid. Deze modellen van expressie zijn uit het menselijk bewustzijn voortgekomen onder culturele omstandigheden. Ieder ven deze patronen heeft de weg gewezen gedurende belangrijke tijdperken in de geschiedenis om de betekenis van het leven voor de mens duidelijk te maken en te besturen. Deze modaliteiten schijnen bovendien een blijvend, maar zich ontwikkelend vermogen voor aanvat en uitdrukking te hebben, dat het menselijk bewustzijn opnieuw schept in de culturele geschiedenis. Ieder van deze voorbeelden hebben op hun eigen manier meegewerkt aan het zoeken van de mens naar uiteindelijke betekenis.

Het hele eerste gedeelte van de dissertatie door onderzoeken wij de ideen van de natuur en de uiteindelijkheid en de belangrijkheid hiervan voor het zelf-begrip van de mens, door de verschijning van de modaliteiten aan te tonen als patronen van begrijpelijkheid om hem te helpen in zijn onderzoek en uitdrukking van de werkelijkheid. Ook

trachten wij het bewijs bloot te leggen, dat zelfs wanneer ieder van deze wijzen van expressie zijn waarde verliest of vervangen wordt, de mens toch opnieuw zoekt om dat bewuste teleologische gebod, dat hij voelt, om de totaliteit van wat hij kan ervaren, te bevredigen.

Toch heeft de appreciatie van teleologische categorien een ongelijke geschiedenis van belofte en ontkenning gehad. Vanaf de Helleense periode tot het einde van de middeleeuwen regeerde het geloof in de teleologische dynamiek van de mens en de realiteit. Het beoefenen van bewustzijn op de wereld gedurende deze eeuwen bracht verschillende mythische, philosofische, wetenschappelijke en teleologische wijzen van denken voort, die een gemeenschappelijke visie van de werkelijkheid als een au fond teleologische onderneming met een alles overtreffend doel versterkte.

De middeleeuwse kijk op de wereld heeft evenwel zulke radicale culturele veranderingen ondergaan, dat een totaal nieuwe visie op het leven ontlook: dat de mens nu leefde in een mechanistisch universum. Het moderne tijdperk, dat de middeleeuwse synthese verwerpt, stelde niettegenstaande zijn eigen versie van teleologie voor. De menselijke opmars kan nu verbonden worden met wetenschappelijke billijkheid en technische vooruitgang. Een aan de aarde gebonden teleologie begon te concureren met de traditionele transcendentale zin. De nieuwe benadering van de natuur als een grenzenloos gebied voor mechanistische ontdekkingen, stimuleerde het culturele optimisme, dat aan de Enlightenment de kans gaf om de mens te zien als een zich steeds ontwikkelend wezen. Technische ontdekkingen, handel en industrie gaven zulke konkrete voorbeelden van overvloed en verbetering, dat de civilizatie natuurlijkerwijs vooruitstrevend en het welzijn van de mens steeds meer vatbaar voor verbetering leek.

Deze nieuwe mythe van de moderne tijd heeft de mens geleid sinds de dagen van Bacon's "New Philosophy." Maar het idee van algemene vooruitgang door de ontwikkeling van wetenschappenlijke rede en de technologische toepassing daarvan, verbreedde de aantrekkingskracht hiervan, toen dit idee later verbonden werd met het denkbeeld van evolutie. Het mechanistische universum werd verheven door het idee van verandering en ontwikkeling, dat wortel had geschoten in de toevalligheden van de stof.——evolutionaire vooruitgang werd de wet van het wetenschappelijk begrijpen en de betekenis van de geschiedenis. Een vreemde teleologie van de vooruitgang verrees, wier oorsprong en reden voor bestaan berustte op blind toeval.

Dank zij een wetenschapsmens-philosoof, Professor Jacques Monod, die er op stond, dat de fundamentele betekenis van de natuur zinloos is, is de gunstige ontvangst, die aan de theorie is toegekend, nog steeds acceptabel in de 20ste eeuw.

Deel II: De natuur en de uiteindelijkheid als wederkerige betrekking van het religieuze bewustzijn.

Deel II legt de nadruk op het feit, dat de wereldlijkheid van de vorige eeuw nog steeds bestaat. Zekere culturele gebeurtenissen in deze eeuw hebben het geloof in de wet van vooruitgang ondermijnd. Vele wetenschapsmensen en philosofen hebben de doelloosheid van de werkelijkheid gehandhaafd. Teleologische categorien van betekenis en het religieus geloof in transcendentie zijn vervangen door de wetenschappelijke nadruk op het verminderen van het karakter van de realiteit tot toeval. Deze culturele stemming van wetenschappelijke wereldlijkheid is een godsdienstig punt geworden, want deze biedt zichzelf aan als de uiteindelijke verklaring van de geschiedenis en het zijn.

Deel II zet de critiek op dit probleem van culturele zinloosheid voort, door ten eerste een algemene beschrijving te geven van het karakter van het godsdienstig bewustzijn. Deze beschrijving is gebaseerd op de ingeboren en onbeperkte ervaring van de mens om de totaliteit van zijn wezen en van zijn historische pogingen om de betekenis ervan te symboliseren, te kennen.

Ten tweede onderzoeken wij wetenschappelijke zowel als niet-wetenschappelijke getuigenis op de kleinste aanduiding van betekenis, welke het geloof in de vorming van het godsdienstig bewustzijn kan ondersteunen.

Ten derde stellen wij voor, dat zelfbewuste drang van de mens naar uiteindelijkheid zich continue manifesteert in een teleologische opzet, zelfs wanneer de specifieke culturele uitdrukking daarvan de dynamiek van de culturele geschiedenis niet overleeft.

Ten vierde pogen wij te bewijzen en poneren wij een theorie, welke stelt dat de mogelijkheid of hypothese voor transcendentale "zijn," voor het vervullen van een religieus bewustzijn als een actueel levende ervaring, berust in de mens zelf. En, dat de immanente bron voor dit succes ligt in het teleologisch dynamisme van zijn bewustzijn.

Het hoofd onderwerp van Deel I geeft de wijzen aan, waarop

het onbeperkte verlangen om uiteindelijke betekenis te verwezen lijken naar voren is getreden. Ook geeft het te kennen, dat de mens steeds poogt zich in te laten met de uiteindelijke betekenis van de werkelijkheid, binnen de grenzen van welke modaliteit van bewustzijn dan ook.

Onze conclusie is, dat het bewijs van waarde van welk paradigma of symbool van uiteindelijkheid dan ook getoetst moet worden aan de scheppende kracht van het bewustzijn in het actieve proces van het samenvallen van die symbolen, die hopelijk het proces van transcendentie zouden voortbrengen of in beweging zetten.

Theses

1. East-West religious dialogue may not be a threat to institutional religion, but given the unfinished character of man's nature, these exchanges may indicate the necessity and complimentarity of insight into ultimacy.

2. If the human quest for ultimacy is to become a lived reality and not just a theoretical possibility, then man must explore critical forms of verifying its actuality.

3. Religious denominations ought to consider that their orthodox credentials may not fully express the religious reality that they purport to uphold.

4. Theological concepts of man's nature will remain drastically incomplete unless theologians reflect more seriously upon the inherent capacities of human consciousness attested by scientific demonstrations.

5. The practical success of mystical theology may require a modern revision of its traditional concept of the psychosomatic structure of human nature

6. It is not to the advantage of modern science nor theology since Vatican II, to presume that facts which cannot be explained by orthodox theories do not exist.

7. The fact that we live in an indefinite pluralistic universe should offer new stimulation to the theology of creation.

8. Even when modern science gradually separated itself from religious sanction, it always manages to turn itself into the religious issue of ultimacy.

9. If either science, philosophy or theology posits that their own integrity requires the denial of myth, then all three have formed their own myth.

10. Professor Monod's purpose in writing his book was to prove that life is purposeless.